

Central Valley Regional Water Quality Control Board
25/26 October 2007 Board Meeting

Response to Comments for the City of Yuba City Wastewater Treatment Facility
Tentative Waste Discharge Requirements

The following are Regional Water Quality Control Board, Central Valley Region (Regional Water Board) staff responses to comments submitted by interested parties regarding the tentative Waste Discharge Requirements (proposed NPDES Permit renewal) for the City of Yuba City Wastewater Treatment Plant. Public comments regarding the proposed Orders were required to be submitted to the Regional Water Board by 1 October 2007 in order to receive full consideration.

The Regional Water Board received timely comments regarding the proposed permit from the City of Yuba City (Discharger), the California Sportfishing Protection Alliance (CSPA), and the Central Valley Clean Water Association (CVCWA). The comments were all accepted into the record, and are summarized below, followed by staff responses.

CITY OF YUBA CITY (DISCHARGER) COMMENTS

City of Yuba City Comment #1. Reopeners. Future compliance of aluminum, lead, and diazinon is dependant on future studies and subsequent reopeners to the permit for effluent limit modifications. The Discharger would like to attempt eliminating the need for future reopeners at the present time, however would prefer the proposed permit to go to the Regional Water Board during the October 2007 meeting. The reopener for the diazinon limitation is dependent on USEPA approval of the 2007 Basin Plan Amendment, which is anticipated in the second half of 2008. The Discharger understands that until there is approval by the USEPA, the current diazinon TMDL applies and no changes to the proposed permit are appropriate. However, for aluminum and lead, the information at hand can be reevaluated to remove the need for reopeners as follows:

Aluminum

For aluminum, the USEPA chronic objective (87 µg/L) is the most stringent objective and effectively controls the effluent limitations calculation, however the chronic objective is relatively controversial. USEPA acknowledges that many high quality waters exhibit water column concentrations exceeding the 87 µg/L level and development of a water effects ratio (WER) is encouraged. The Discharger has begun the process of developing a WER for aluminum in the Feather River and the Phase I tests result in no observable effect at a concentration of 8000 µg/L, two orders of magnitude greater than the USEPA National Criterion. For the Phase I study, the WER calculation is truncated because there were no observable effects at the tested levels of aluminum, however a conservative calculation estimates the WER greater than 50. The next most stringent objective is the secondary Maximum Contaminant Level (MCL) of 200 µg/L, so that if the chronic aluminum WER was greater than 2.3, the adjusted chronic aluminum criteria will be greater than 200 µg/L. It is reasonable to conclude that if the Phase II WER is

completed, the resulting WER would yield an adjusted chronic aluminum criteria considerably greater than 200 µg/L. Performing the Phase II would represent a considerable expense on Discharger staff time and monitory requirements, and will result in additional resources by the Regional Water Board staff to evaluate the Phase II results and reopen the permit. The Discharger believes there is sufficient empirical evidence at hand to justify removing the published USEPA national chronic objective from consideration in developing aluminum effluent limitations for the City in the Order.

The Discharger believes that the Regional Water Board has the discretion to use best professional judgment to determine that recommended aluminum aquatic life criteria are not applicable based on results of the preliminary studies; just as the Board used its best professional judgment to apply the criteria through the narrative objective. Aluminum is not a priority pollutant and is not included in the California Toxics Rule (CTR). Also, a numeric aquatic life-based water quality objective for aluminum is not included in the Central Valley Basin Plan. If the Regional Water Board determines that a full WER must be completed, at an estimated cost of \$50,000 to \$100,000, wording should be added to the Section VI.C.7.a.i. of the proposed permit and Fact Sheet Section IV.C.3.g that clarifies the compliance schedule to reflect the Discharger's planned approach. Based on the Phase I results, the Discharger anticipates that the permit would be reopened to adjust the aluminum limits.

RESPONSE: Regional Water Board staff technically agrees that the preliminary results from the Phase I study indicate that application of the U.S. Environmental Protection Agency (USEPA) criterion for aquatic life protection may be overly protective and that the subsequent Phase II study may be costly. However, until the Phase II studies are complete, adjustments to the applicable criterion for aluminum will not be proposed in the NPDES permit. The revised work plan submitted by the Discharger on 1 February 2007 provides a WER study design that is consistent with the February 1994 USEPA *Interim Guidance on Determination and Use of Water-Effect Ratios for Metals* (EPA-823-B-94-00) and, if executed properly, should yield a defensible WER for aluminum in the Feather River in the vicinity of the Facility discharge. Because it is anticipated that the WER study will be completed during the term of the proposed permit, the Regional Water Board has provided a reopener provision to facilitate revising the water quality based effluent limitations (WQBELs) based on completion, review, and approval of the WER for aluminum.

City of Yuba City Comment #2. 2,3,7,8-TCDD and Furan Congeners - The Discharger requests that the proposed 2,3,7,8-TCDD and Furan Congeners (dioxin and congeners) monitoring be collected through grab sampling instead of 24-hr composite to minimize sample contamination. Project managers from a certified commercial dioxin testing laboratory have indicated that phthalate and/or plastic-containing equipment may lead to contamination of samples. USEPA Standard Method 1613, Section 6.1.2., for composite samples confirms the ease of contamination as follows:

6.1.2 Compositing equipment—Automatic or manual compositing system incorporating glass containers cleaned per bottle cleaning procedure above. Only glass or fluoropolymer tubing shall be used. If the sampler uses a peristaltic pump, a minimum length of compressible silicone rubber tubing may be used in the pump only. Before use, the tubing shall be thoroughly rinsed with methanol, followed by repeated rinsing with reagent water to minimize sample contamination. An integrating flow meter is used to collect proportional composite samples.

Although it is the Discharger's responsibility to ensure that samples are collected in a manner to gather data of high quality, most dischargers are unaware of the special requirements to properly sample for 2,3,7,8-TCDD and Furan Congeners at parts per quadrillion method detection limits. This detection range is a thousand times lower than that of mercury in which sources of sample contamination are well known (See EPA method 1669 section 4.0). Attachment 1 of the 10 September 2001 Regional Water Board California Water Code Section 13267 Requirement to Submit Monitoring Data for CTR constituents directs dioxin to be sampled by either grab or composite. Attachment II lists the suggested method for dioxin as EPA Method 8290. Method 8290 describes sampling procedures in section 6.2.2. but is vague and does not go into the detail that EPA method 1613 does. It should also be noted that analytical limits of Method 8290 does not meet the minimum CTR concentration criterion while the analytical limits of Method 1613 does.

The Regional Water Board similarly acknowledges sample contamination issues with Bis (2-ethylhexyl) phthalate and that 2,3,7,8-TCDD and Furan Congeners samples can be contaminated by phthalate containing items and atmospheric deposition. To obtain 2,3,7,8-TCDD and Furan Congeners data of high quality, the samples should be collected as a grab to minimize the potential for sample contamination. If compositing is absolutely necessary, it should be done by collecting three grabs throughout the day. The discrete grab samples would then be delivered to the dioxin laboratory for proper compositing and analysis in a clean room environment, as compositing in an open air environment is in itself a source of contamination.

It is requested that Tables E-3 and E-4 TCDD-Equivalents sampling type be changed to grab.

RESPONSE: Regional Water Board staff concurs that due to the low detection levels required for analysis of 2,3,7,8-TCDD and furan congeners, the potential for sample contamination is high. Therefore, Regional Water Board staff has revised the proposed Monitoring and Reporting Program (Attachment E) to specify "grab" as the sample type for 2,3,7,8-TCDD and furan congeners.

City of Yuba City Comment #3. Lead. The detection levels utilized in lead analyses conducted prior to June 2006 were generally too high to allow full characterization of the effluent lead concentration distribution. Furthermore, prior to June 2006, dissolved lead

levels were not measured in either the effluent or in the Feather River. Because of insufficient input data, the Discharger was unable to perform dynamic modeling to evaluate lead effluent limitations. Currently, lead effluent limitations in the proposed permit are calculated using the State Water Resources Control Board's Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays and Estuaries of California (As known as the State Implementation Policy of SIP), Steady State method and available total lead data. The calculated effluent limitations are sufficiently low that the Discharger will not be able to immediately comply with the calculated effluent limitations and a time schedule for compliance with interim lead limitations are included as part of the proposed permit. The Discharger intends to perform dynamic modeling to recalculate the lead limitations for the effluent and will be requesting that the permit to be reopened in the future to modify the sections pertaining to lead. Acknowledging the data limitations, the Discharger has been collecting low-level total and dissolved lead data for both the effluent and Feather River. All available lead data are attached.

The Discharger is well aware of the State Water Resources Control Board (State Water Board) decision related to criticism for continued and untimely data submissions. When the Discharger submitted the Report of Waste Discharge (ROWD) on July 18, 2006 it appeared that there was sufficient assimilative capacity within the Feather River to result in lead effluent limitations that could be immediately achieved. During the preparation of the proposed permit the data set was reevaluated and determined to not be sufficient to eliminate Feather River data that was collected during high river flows – 58,500 cfs and 109,000 cfs. When the ROWD was submitted the Discharger also utilized a hardness of 39 mg/L compared to the proposed hardness value of 32 mg/L. The Discharger initiated increased monitoring of the Feather River for total and dissolved lead. An additional thirty one sampling events have taken place at Feather River flows ranging from 2,600 cfs to 9,900 cfs. The highest ambient total lead concentration has been 0.37 µg/l while every dissolved lead sample has been non-detect at a minimum detection level (MDL) of 0.05 to 0.1 µg/L. The Discharger submitted the current data set with these public comments. The Discharger will continue to monitor the Feather River lead concentrations at the low detection levels. This data and near future data will be utilized to calculate an effluent limit through dynamic modeling. Based the Discharger's dynamic model utilizing the dissolved lead data to date for the Feather River and total lead in the effluent, the resulting average monthly effluent limitation (AMEL) and maximum daily effluent limitation (MDEL) are 16.1 µg/L and 24.5 µg/L, respectively. While additional data collection may result in modest changes to the calculated effluent limitations, the levels are unlikely to change significantly. If these limits were to be adopted historical wastewater facility performance does not indicate a compliance issue.

RESPONSE: As described in Section VI.C.1.f of the proposed permit, a reopener provision has been included for when the Discharger completes its efforts to reevaluate effluent limits for specific constituents (e.g., lead) based on use of their dynamic model. Upon review and concurrence by the Regional

Water Board, the Order may be reopened to modify effluent limitations for the applicable constituents.

City of Yuba City Comment #4. Interim Limitation Dates For Aluminum and Iron.

Interim effluent limitations for non-California Toxic Rule (non-CTR) constituents should remain through the effective term of the proposed permit. For both Discharge 001 and 002, the interim limits for aluminum and iron should be moved from section IV.A.3.a, limiting effectiveness to May 2010, of the Interim Effluent Limitations to section IV.A.3.c for the effective term of the permit. Modification is also required in Section VI.C.7.a.i to remove aluminum and iron from the 18 May 2010 date and adding to the sentence providing the effective term of the permit.

RESPONSE: According to the infeasibility analysis submitted by the Discharger, two years after permit adoption is requested time schedule for completion of an aluminum WER study. Keeping the compliance date for non-CTR parameters consistent with the date for CTR parameters provides the Discharger the opportunity to evaluate and implement control options for all parameters at the same time. The Regional Water Board is under no obligation to provide the full permit term to comply with applicable effluent limitations. NPDES regulations at 40 CFR 122.47 (a)(1) states that compliance schedules are to require compliance as soon as possible.

Regional Water Board staff reevaluation of the Discharger's monitoring data from July 2003 to June 2006 (the permit development data set) indicates that the highest observed average monthly concentration of iron in the discharge is 210 ug/L and the highest observed annual average is 82 ug/L. The proposed effluent iron limitation is 300 ug/L as an annual average. Therefore, the Discharger is able to immediately comply with the proposed iron effluent limitation. Regional Water Board staff intends to remove the proposed compliance schedule for iron effluent limitations in the tentative permit presented to the Regional Water Board for consideration.

City of Yuba City Comment #5. Bis (2-ethylhexyl) phthalate. The Discharger requests effluent limitations for Bis (2-ethylhexyl) phthalate be included in the proposed permit, and that appropriate calculations and information be added to the Fact Sheet Section IV.C.3.i The Discharger also requests that appropriate Bis (2-ethylhexyl) phthalate limitation information be added to the Table F-10, F-28 and F-29 summary tables and other applicable tables.

RESPONSE: As described in the Fact Sheet, the effluent data indicates reasonable potential for the Bis (2-ethylhexyl) phthalate concentration in the effluent to cause exceedance of applicable water quality criteria. However the Regional Water Board, based on concerns raised by many dischargers about inappropriately establishing effluent limitations for Bis (2-ethylhexyl) phthalate due to issues related to sample and analytical procedure contamination, has not

been establishing Bis (2-ethylhexyl) phthalate effluent limitations in NPDES permit where monitoring data is not collected using ultra-clean techniques. Instead, the Regional Water Board is requiring dischargers to monitor for the presence of Bis (2-ethylhexyl) phthalate using sampling and analytical methods that would minimize the potential for contamination. Regional Water Board staff believes that the resulting data will provide more valid, reliable, and representative data to determine whether a reasonable potential exists for Bis (2-ethylhexyl) phthalate.

During the public comment period the Discharger requested a Bis (2-ethylhexyl) phthalate effluent limitation. Staff proposed a Bis (2-ethylhexyl) phthalate effluent limitation in the tentative permit that is part of the agenda. However, after reconsideration of the proposed limitation and recognition that the existing permit does not have a Bis (2-ethylhexyl) phthalate limitation that went into effect, staff is proposing removal of the proposed effluent limitation on the same basis as explained above.

City of Yuba City Comment #6. Editorial Comment. The Discharger has requested the following editorial changes to the following sections of the proposed permit:

- Section I, Table 4. Facility Design Flow: Add “average dry weather flow”
- Section IV, A.1.j, A.2.j, B.1.i, B.2.i: Change wording in mercury limitation to, “For a calendar year, the annual average total recoverable mercury loading in the effluent shall not exceed 0.672 lbs/year.”
- Section IV, 4.A., 4.B. Tables 6,7,11,12: Add language to Footnote 1, “Compliance with the mass effluent limitations will be determined during average dry weather periods only when groundwater is at or near normal and runoff is not occurring” as per Section VII.G of this Order.
- Section IV, C.7.: Add the language, “of pond system.”
- Section VI.A.2.: Change “...Dischargers’ biosolids or...” to “...Discharges’ biosolids use or...”.
- Section VI.C.1.g. Diazinon, the values 0.10 and 0.16 are mistakenly transposed. The 0.16 µg/L should correspond to the future 1-hour average and 0.10 µg/L should correspond to the future 4-day average. The same change is required in the Fact Sheet Section VII.B.1.e
- Section VI.C.2.iii. Numeric Monitoring Trigger: For consistency with effluent limitations, modify: “..monitoring trigger of > 12 TUc...” and supplement with; “Effective after State Water Board Adoption of the Lower Yuba River Accord a

numeric toxicity monitoring trigger of > 17 TUc,.” due to the increase in minimum flow in the Feather River.

- Section VI.C.3.d: Change title from “2,3,7,8-TCCD Congeners” to “2,3,7,8-TCDD and other CDD and CDF Congeners” or “Dioxin and Furan Congeners”. The same change is required in the Fact Sheet (ca. F-94).
- Table E-1: Change Groundwater monitoring location tag to G-001...for all wells to match monitoring locations in section VII.
- Table E-2: Change from “...shall collected...” to “...shall be collected...”.
- Tables E-3 and E-4, because composite sample for dioxin and furan congeners may be easily contaminated by contact with any pump tubing used in a compositor, the sample type should be changed from “24-hr Composite” to “Grab”. (See City of Yuba City Comment No. 2.)
- Tables E-3 and E-4: Change Effluent Ammonia Nitrogen sample from “Grab” to “24-hr Composite” for consistency with Influent Ammonia Nitrogen sample.
- Tables E-3 and E-4: Add to footnote 4 “listed in Section 3 of the SIP “ after “...dioxin congeners” to provide clarification of which congeners.
- Table E-6: Add the language, “of pond system.”
- Table E-8: Footnote 1: Add at the end of the footnote “Gradient and gradient direction are not required to be reported until completion of the groundwater Study.”
- Table E-8: Footnote 4: Add language, “for more than one day per month.”
- Table E-11: Replace “2,3,7,8-TCCD” with “2,3,7,8-TCDD” or “Dioxin and Furan Congeners”.
- Table E-11, Groundwater Monitoring Technical Report: Replace “DATE” with “Within 15 months after permit adoption. The same change is required in Fact Sheet
- Table F-2, Electrical Conductivity: Correct the 1000 $\mu\text{mhos/cm}$ to correspond to a maximum day.
- Section II.A: Remove “d” from mgd in relation to total volume of disposal ponds.
- Section III.C.2, second to last sentence: Change “Discharge” to “Discharger”.

- Section III.D.2.: Add the sentence, “This permit contains a reopener to allow reevaluation of diazinon effluent limitations once USEPA approval of the Basin Plan amendment.” to the end of the section.
- Section IV.C.3.x. In the first paragraph, after “...agricultural irrigation” add “of livestock feed crops”.
- Section IV.C.3.ff. (second paragraph): Remove the 2,3,7,8 from CDD and CDF as the 2,3,7,8, implies four chloride atoms and the congeners may have up to eight chlorides.
- Section VII.B.2.a: (for consistency with effluent limitations): Modify the Monitoring Trigger to begin with: “Effective until State Water Board Adoption of the Lower Yuba River Accord a numeric toxicity monitoring trigger of > 12 TUc...” and supplement the paragraph with; “Effective after State Water Board Adoption of the Lower Yuba River Accord a numeric toxicity monitoring trigger of > 17 TUc, based on the corresponding dilution factor of 17. Therefore a TRE is triggered when the effluent exhibits a pattern of toxicity at 5.9 percent effluent.”
- Section VII.B.2.c: Remove first “DATE” and replace with “...within 15 months of permit adoption...” Replace second “DATE” with “...within 12 months of submitting groundwater monitoring report...”.
- Section VII.B.3.d: Replace “2,3,7,8-TCCD” with “2,3,7,8-TCDD” or “Dioxin and Furan Congeners” in two locations.
- Section VIII.A: Notification of the public was through posting at Yuba City’s City Hall public notice board, posting at the Wastewater Facility and publication in the Appeal Democrat.

RESPONSE: Regional Water Board staff concurs and has made the suggested edits for clarification purposes.

City of Yuba City Comment #7. Editorial Comment. The Discharger has further requested the following editorial changes to the following sections of the proposed permit:

- Section VI.A.2.p.: Add language, “unless identified as another location in Attachment E – Monitoring and Reporting Program.”
- Section VI.A.2.q.: Add language, “unless the instrument can not be calibrated, such as in line magnetic flow meters.”

- Section VI.A.2v: Add language, “unless directed to call another number”

RESPONSE: Regional Water Board staff does not concur with the need for the suggested edit to these standard provision.

City of Yuba City Comment #8. Editorial Comment. The Discharger has further requested the following editorial changes to the following sections of Attachment D of the proposed permit:

Section I.A.2., I.C., III.B., IV.A., V.C.2. and 3., and V.F.3.: Replace “sewage sludge” with “biosolids”

RESPONSE: The standard provisions contained in Attachment D are federal provisions. Regional Water Board staff does not concur with the requested change and continues to propose the language as contained in 40 CFR sections 122.41 and 122.42.

City of Yuba City Comment #9. Editorial Comment. The Discharger is concerned that the 24-hour composite receiving water sampling is difficult. The Discharger requests that Footnote No. 7 of Table E-7 be removed and “Grab” sampling method in Table E-7 for Priority Pollutants be added.

RESPONSE: Regional Water Board staff concurs that collection of a 24-hour composite in the receiving water would be very difficult, and has made the suggested change to grab sample.

City of Yuba City Comment #10. Editorial Comment. In Section IV.C.3.cc.ii. of the proposed permit, the Discharger states that the average receiving water Electrical Conductivity (EC) measured was 90 µmhos/cm between 2 January 1998 and 28 June 2006, not 120 µmhos/cm as shown.

RESPONSE: Regional Water Board staff has reviewed the EC data and concurs with the identified correction.

CALIFORNIA SPORTFISHING PROTECTION ALLIANCE (CSPA) COMMENTS

CSPA Comment #1. Inappropriate mixing zone for critical aquatic habitat.

After reviewing proposals for mixing zones in the area of the discharge, the California Department of Fish and Game (DFG) concluded that: “We would recommend that because of the anadromous species (in particular listed species present) and the potential for extended exposure to the proposed discharge, that the allowance of a mixing zone is not appropriate.” Yet, despite this clear recommendation, the proposed Permit not only grants mixing zones, it grants all of the assimilative capacity of the

Feather River regardless of whether it was considered necessary to accommodate the poorly treated sewage.

The Fact Sheet to Waste Discharge Requirements (WDR) Order No. R5-2006-0096, the NPDES permit for the Linda County Water District (LCWD) Wastewater Treatment Plant (WWTP), included the following:

“The Discharger discharges treated wastewater to the Feather River at Shanghai Bend just upstream of Shanghai Falls. The *Endangered and Threatened Species; Designation of Critical Habitat for Seven Evolutionarily Significant Units of Pacific Salmon and Steelhead in California; Final Rule*, (50 CFR Part 226.211), issued on 2 September 2005 and effective on 2 January 2006, designates the lower Feather River below Oroville Dam as critical habitat for Central Valley spring-run Chinook and Central Valley steelhead.

Regional Water Board staff consulted with DFG regarding the fishery at Shanghai Bend and Shanghai Falls in the Feather River. A 17 November 2005 letter from DFG stated:

The Feather River in this area supports fall-, late fall-, and spring-run Chinook salmon, steelhead trout, striped bass, American shad and a variety of other game and non-game species. Spring-run Chinook salmon are federal and state listed threatened species and steelhead trout is a federal listed threatened species.

Because of the river configuration at Shanghai Bend, adult anadromous fish including fall-, late fall- and spring-run Chinook salmon, steelhead trout, striped bass, and American shad often congregate immediately below Shanghai Bend for extended durations during their upstream migration. During lower flow periods the problem is exasperated, and in fact some species (American shad and striped bass) appear to be essentially blocked (DFG unpublished data) immediately below Shanghai Bend.

Additionally, juveniles (including listed federal and state species) use the area for rearing and migration. The entire instream production of salmonids (fall-, late fall- and spring-run Chinook salmon, and steelhead trout) in the Feather River and Yuba River must pass Shanghai Bend. The Yuba River is basically the last large river in the Central Valley that is maintained solely by natural in-stream production of salmon and steelhead trout, and is essentially the only wild steelhead fishery remaining in the Central Valley.

Because of the extended periods that juvenile and adult fish spend in the Feather River at Shanghai Bend, they would be subject to extended exposure to any discharges. It is likely that such exposure will ultimately result in decrease population viability and survival of salmonids and other species, including federal and state listed species. We would recommend that because of the anadromous

species (in particular listed species present) and the potential for extended exposure to the proposed discharge, that the allowance of a mixing zone is not appropriate.”

On 29 March 2005, DFG staff responded via email, in summary that: fish, specifically American Chad, Striped Bass, Chinook Salmon and Green Sturgeon are impacted by Shanghai Falls and tend to “hold a bit below the falls” and may remain below the falls for longer periods, particularly during low water years, thereby increasing exposure times, and that DFG would never support a project that discharges acutely toxic materials to a waterway that will likely soon be designated as critical habitat.

In June of 2003, the California Department of Water Resources (DWR) prepared a draft report *Juvenile Fishes of the Lower Feather River: Distribution, Emigration Patterns, and Association with Environmental Variables* which states in the introduction that “The Feather River is significant because it is the largest tributary to the Sacramento River system, is home to two federally listed endangered species (Central Valley spring-run Chinook salmon and Central Valley steelhead *Orcorhynchus mykiss*)...”

In email communications dated 27 December 2004, when asked about the Shanghai area of the Feather River, DWR staff stated:

Adult salmon could certainly be present as early as Mid-April through the fall, although the majority will be present June-September. There is no evidence or reason for adult salmon to spend any length of time in this area. We have done some radio tracking studies in the Feather [River] recently but very few fish were monitored this low in the river. I would be potentially concerned about sturgeon adults (white and green) however. We have observed them at Shanghai in June. During low flows they may spend a large amount of time there.

Large number of juveniles will be moving through the area from January through March...

A letter dated 25 April 1973 from the Wildlife Conservation Board discusses the Shanghai Bend area of the Feather River, in part, as follows:

The affected portion of the Feather River is a well-known shad and striped bass fishing area and, in spite of the lack of public access, is heavily fished. At least ten percent of all the Feather River shad fishing occurs in the vicinity of the 108-acre Steele property. This use amounts to about 4,000 angler days per year...Other angler attractions include runs of 50 to 60 thousand adult king salmon, which pass through the Shanghai Bend area each year and fair to excellent populations of smallmouth bass and channel catfish, which attract fishermen on a year-round basis.”

RESPONSE: The Facility discharges to the Feather River at Discharge Point No. 001 through a multi-port diffuser. The river is approximately 588 feet wide at the diffuser. At a distance ranging from 160 feet to 320 feet downstream of the diffuser is Shanghai Falls. The Regional Water Board acknowledges that the Feather River at Shanghai Bend upstream of Shanghai Falls and in the vicinity of the City of Yuba City outfall into the Feather River is critical habitat for many sensitive and important aquatic life species. However, as described in Section IV.C.2.c of the Fact Sheet, the Regional Water Board believes that the mixing zone for the City of Yuba City discharge into the Feather River will be protective of aquatic life in the vicinity of Shanghai Bend upstream of Shanghai Falls.

In the City of Yuba City existing WDR Order No. R5-2003-0085, the Regional Water Board granted a mixing zone and full and partial dilution credits for chronic aquatic life and human health criteria for several constituents for which assimilative capacity was available in the Feather River. For several constituents, the Regional Water Board did not grant dilution credits for chronic aquatic life and human health-based criteria based on lack of assimilative capacity. Mixing zones for acute aquatic life were not provided as the Regional Water Board believed that an adequate zone of passage for aquatic life was not available during critical low flows in the Feather River.

The Discharger challenged, as part of their petition to the State Water Board, the Regional Water Board's decisions regarding mixing zones and dilution credits in existing WDR Order No. R5-2003-0085. The State Water Board, in Water Quality Order (WQO) No. 2004-0013, found that an acute mixing zone should be allowed, but downsized from the 66.4 to 1 mixing zone proposed by the Discharger. Further, the State Water Board questioned the Regional Water Board's restriction of dilution credits for chronic aquatic life and human health-based criteria based primarily on the lack of rationale provided by the Regional Water Board.

The revised mixing zone analyses and modeling provided by the Discharger for development of the proposed permit were based on conservative assumptions that resulted in the mixing zone being as small as practicable to ensure protection of aquatic life and human health (the mixing zone analyses are available for review in the public record). Further, based on its review of the Discharger's final analysis of mixing, the Regional Water Board concluded that an adequate zone of passage for aquatic organisms exists and full initial dilution should be allowed for the acute aquatic life criterion applicable to the discharge from the Facility.

The Regional Water Board did not receive agency-level recommendation from DFG and DWR. Informal comments received by email were from DFG and DWR staff without confirmation that the comments represent the agency's position.

Regardless, Regional Water Board staff considered the input from this other agency staff to assure the proposed mixing zone was analyzed to protect the differing aquatic life criteria.

CSPA Comment #2. Available Assimilative Capacity. CSPA states that the proposed permit overestimates the available assimilative capacity by not considering the permitted Linda County Water District and City of Marysville wastewater discharges which will result in exceedances of water quality objectives contrary to Federal Regulation, 40 CFR 122.4 (a), (d) and (g) and California Water Code, section 13377.

Based on the information provided in the proposed permit, it appears that the determination of assimilative capacity presented in the proposed permit fails to consider effluent water quality data for the Linda County Water District (LCWD) discharge to the Feather River. The State Water Resources Control Board's (State Board) Water Quality Order (WQO) 2004-0013 found (p. 13) the following:

"The decision of the Regional Board to limit the City to 80% of the allocated assimilative capacity that will be granted is adequately justified. The relative flow contributions of the City [of Yuba City] and Linda [County Water District] are readily identified. If both dischargers were granted full dilution credits, at times there would be a lack of assimilative capacity. It is not appropriate to grant full dilution credits to one discharger on a stretch of river, so that another discharger would receive no dilution credits. Moreover, if there are more dischargers in the future, a more rigorous allocation scheme may be required."

The LCWD wastewater treatment plant (WWTP) is equipped with an outfall to the Feather River upstream of the Yuba City outfall. The Fact Sheet to the existing WDR Order No. R5-2006-0096 for the LCWD WWTP, at II.A (p.4), states that "[t]he existing outfall pipeline, which was a single point discharge at the shoreline, has not been used for many years." Proposed upgrades to the LCWD plant include an outfall equipped with a diffuser, also to be located upstream of the Yuba City outfall. The proposed permit fails to consider the permitted quantity (1.8 to 5.0 mgd) and quality of the LCWD discharge that is unaccounted for in receiving water (Feather River) data collected while the LCWD WWTP was not discharging. This failure results in over-estimation of assimilative capacity and, therefore, inaccurate and unprotective effluent limitations due to over-allocation of the Feather River's assimilative capacity. The City of Marysville has ponds located within the river banks which may occasionally flood, washing waste constituents downstream. The proposed permit must be revised to consider the permitted quantity and quality of the LCWD WWTP discharge in assessing assimilative capacity. By failing to consider the Linda County discharge the mixing zone analysis is incomplete and the resultant Effluent Limitations will result in exceedance of water quality objectives contrary to Federal Regulations and the CWC. Federal Regulation, 40 CFR 122.4 (a), (d) and (g) require that no permit may be issued when the conditions of the permit do not provide for compliance with the applicable requirements of the CWA,

or regulations promulgated under the CWA, when imposition of conditions cannot ensure compliance with applicable water quality requirements and for any discharge inconsistent with a plan or plan amendment approved under Section 208(b) of the CWA. California Water Code, section 13377, requires that: "Notwithstanding any other provision of this division, the state board and the regional boards shall, as required or authorized by the Federal Water Pollution Control Act, as amended, issue waste discharge and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary, thereto, together with any more stringent effluent standards or limitations necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance."

RESPONSE: As described in Sections IV.C.2.c and IV.C.4.c of the Fact Sheet, assimilative capacity was estimated based on receiving water characteristics upstream of the discharge point for the City of Yuba City discharge. Regional Water Board staff believes that the available assimilative capacity was not overestimated based on a number of factors. First, the effluent limitations in the proposed permit are based on worst-case assumptions (e.g., use of the highest background concentration and use of the critical low flows). Second, no dilution is provided for discharges from the Linda County Water District, resulting in the application of water quality objectives at the end-of-pipe. In order to comply with its existing end-of-pipe effluent limitations, the Linda County Water District discharges at concentrations below the water quality criteria/objectives. In addition, the actual discharge from the Linda County Water District will be at the lower end of the permitted range (1.8 million gallons per day) for several years. Therefore, the relative contribution from the Linda County Water District is not expected to cause, in conjunction with the City of Yuba City discharge, exceedances of applicable water quality objectives for the Feather River. Third, the Linda County Water District permit and the proposed permit includes monitoring in the Feather River upstream of discharge locations. If data indicates that receiving water pollutant concentrations are higher than those used to derive effluent limitations for these permits, the Regional Water Board may need to reassess the assimilative capacity of the Feather River in the vicinity of the proposed discharge and the relative contributions from all dischargers in the watershed, and reopen NPDES permits as appropriate to ensure that water quality criteria/objectives are not exceeded.

CSPA Comment #3. Point of Applicable Criteria. CSPA states that the proposed Permit fails to specify the point in the receiving stream where applicable criteria must be met as required by SIP Section 1.4.2.2.

A very clearly unaddressed requirement (SIP Section 1.4.2.2) for mixing zones is that the point(s) in the receiving stream where the applicable criteria must be met shall be specified in the proposed Permit. The "edge of the mixing zone" for each constituent has not been defined and the proposed Permit must be so modified. Monitoring to

determine the accuracy of the mixing zone study at the required point of compliance must also be added to the permit to determine compliance.

RESPONSE: Regional Water Board staff does not concur that monitoring in the Feather River to assess the validity of the mixing zone is necessary. As described in Section IV.C.2.c of the Fact Sheet, the revised mixing zone modeling effort was validated through field studies. The resulting dilution factors determine the point of compliance and boundaries of the approved mixing zones, which are used to develop the proposed end-of-pipe effluent limitations. Therefore, Regional Water Board staff believes that compliance with the proposed effluent limitations will ensure compliance with the approved mixing zones without having to monitor within the Feather River itself.

CSPA Comment #4. Assimilative Capacity. CSPA states that the proposed Permit over allocates the assimilative capacity of the Feather River by more than 100% of the available capacity contrary to the Basin Plan's *Water Quality Limited Segment Policy*, Federal Regulations and the California Water Code.

The proposed permit allocates approximately 100% of the assimilative capacity of the Feather River for limited constituents at the surface water discharge point 001. The mixing zone analysis is solely based on the analysis at discharge point 001. Effluent Limitations for discharge point are contained in Table 6. The proposed Permit also allows a discharge from ponds inside the river levee; discharge point 002. The effluent limitations for discharge point 001 and 002 are virtually identical. The discharges from points 001 and 002 will occur at the same time and are additive, thereby over allocating the assimilative capacity of the Feather River by greater than 100%. The combined discharges approaching or exceeding 200% of the assimilative capacity of the receiving stream will degrade each and every beneficial use and will exceed all water quality standards for each limited constituent. This does not take into account the City of Marysville, who has also established a record of surface water discharges from their ponds during periods of high flow.

The Basin Plan, page IV-15.00, contains *The Water Quality Limited Segment Policy* which states that: "Additional treatment beyond minimum federal requirements will be imposed on dischargers to water Quality Limited Segments. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be achieved in the segment." When discharging from discharge points 001 and 002; the proposed Permit allows water quality objectives to be exceeded by 100% contrary to the *Water Quality Limited Segment Policy*. Federal Regulation, 40 CFR 122.4 (a), (d) and (g) require that no permit may be issued when the conditions of the permit do not provide for compliance with the applicable requirements of the CWA, or regulations promulgated under the CWA, when imposition of conditions cannot ensure compliance with applicable water quality requirements and for any discharge inconsistent with a plan or plan amendment approved under Section 208(b) of the CWA. California Water Code, section 13377, requires that: "Notwithstanding any other

provision of this division, the state board and the regional boards shall, as required or authorized by the Federal Water Pollution Control Act, as amended, issue waste discharge and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary, thereto, together with any more stringent effluent standards or limitations necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance."

RESPONSE: Although Regional Water Board staff acknowledges that there is the possibility that Discharges through Discharge Points 001 and 002 may occur simultaneously, this occurrence is highly unlikely, and would only occur at extremely high river flows (greater than 60,000 cfs which represents a 4- to 5-year storm frequency) during flood events. In addition, the proposed permit contains effluent limitations that are applied to the discharge into the ponds that are based on achieving water quality objectives, as well as a number of provisions to ensure proper operation of the ponds. Evaluation of discharge data indicates, consistent with the pond operational plans of the Discharger, that discharges to the ponds occur primarily during summer and early fall when river flows are low. The Discharger's operational plan also requires that the ponds be empty prior to the rainy season when high river flows are expected. This operation of the ponds by the Discharger minimizes the probability that concurrent discharges from Discharge Points 001 and 002 would occur.

Further, as described in Section IV.C.3.f of the Fact Sheet, concern was raised in existing Order No. R5-2003-0085 that discharges to the disposal ponds may result in magnified concentrations of pollutants via evaporation that when discharged could affect Feather River water quality. As a result, and in addition to the effluent limitations proposed in the Order, Order No. R5-2003-0085 required a study and report to determine whether discharges from the disposal ponds are adversely affecting water quality (Provision H.12). If it was determined that discharges from the pond result in an exceedance of water quality objectives, then the Discharger was required to report on means to comply, including if necessary, a pond closure plan. Further, Order No. R5-2003-0085 included a provision (H.1) that stated the..."treatment facilities shall be designed, constructed, operated, and maintained to prevent inundation or washout due to floods with a 100-year return frequency." The Discharger in its petition to the State Water Board contends that the ponds should be excluded from Provision H.1, as they have been located and operated under waste discharge requirements for many years. In its response in Order WQO 2004-0013, the State Water Board agreed with the Regional Water Board's concerns raised regarding discharges from the ponds, as well as the Discharger's concerns regarding prohibiting inundation and washout of the disposal ponds. The State Water Board concluded that the issue of location and operation of the ponds should be addressed again after completion of the study and report to determine

whether discharges from the disposal ponds are adversely affecting water quality. This study is required in Section VI.C.2.b of the Order.

CSPA Comment #5. Mixing Zone. CSPA states that the mixing zone analysis failed to consider that 15 diffuser ports were found to be plugged by sediments and cleared in December 2006 and the resulting analysis, based on all portals working is inaccurate and not protective of the beneficial uses of the receiving stream contrary to the California Water Code.

A review of the discharge conditions at Yuba City revealed that 15 diffuser ports were found to be plugged by sediments. A covered portal could mean instant lethality to aquatic life, degrading the aquatic life beneficial use of the receiving water by concentrating the pollutants at the other ports and also increasing the size of the mixing zone. The proposal for annual cleaning is inadequate to address constantly shifting sediments of the river bottom. At a minimum, monthly monitoring especially during periods of increased sediment load (winter high flow) must be required to provide a minimum assurance that the ports are properly working diffusing the waste constituents. California Water Code, section 13377, requires that: "Notwithstanding any other provision of this division, the state board and the regional boards shall, as required or authorized by the Federal Water Pollution Control Act, as amended, issue waste discharge and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary, thereto, together with any more stringent effluent standards or limitations necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance." Failure to protect the aquatic life beneficial use is a violation of CWC Section 13377.

RESPONSE: The mixing zone analysis provided by the Discharger did account for the plugged diffuser ports. The Discharger has since cleared all diffuser ports which should result in improved mixing of the discharge in the Feather River.

Regional Water Board staff does not agree that examination and maintenance of the diffuser ports more frequently than once per year is necessary. Particularly during the high river flow season, safe access to the diffuser in the river would restrict opportunities for examination. Regional Water Board staff also believes that the make-up of the river bottom in the vicinity of the discharge (predominantly large cobbles) would not cover-up the diffuser ports to the extent that monthly examination would be necessary. Therefore the proposed requirement for annual evaluation and maintenance of the diffuser remains unchanged.

CSPA Comment #6. Protection of Recreational Beneficial Use. CSPA states that the proposed Permit fails to protect the contact recreation (REC-1) beneficial use of the Feather River contrary to the California Water Code and Federal Regulations 40 CFR 122.4 (a), (d) and (g).

Most NPDES permits issued by the Sacramento office of the Central Valley Regional Board contain the following discussion: “The principal infectious agents (pathogens) that may be present in raw sewage may be classified into three broad groups: bacteria, parasites, and viruses. Tertiary treatment, consisting of chemical coagulation, sedimentation, and filtration, has been found to remove approximately 99.5% of viruses. Filtration is an effective means of reducing viruses and parasites from the waste stream. The wastewater must be treated to tertiary standards (filtered), or equivalent, to protect contact recreational and food crop irrigation uses. The California Department of Health Services (DHS) has developed reclamation criteria, CCR, Division 4, Chapter 3 (Title 22), for the reuse of wastewater. Title 22 requires that for spray irrigation of food crops, parks, playgrounds, schoolyards, and other areas of similar public access, wastewater be adequately disinfected, oxidized, coagulated, clarified, and filtered, and that the effluent total coliform levels not exceed 2.2 MPN/100 ml as a 7-day median. As coliform organisms are living and mobile, it is impracticable to quantify an exact number of coliform organisms and to establish weekly average limitations. Instead, coliform organisms are measured as a most probable number and regulated based on a 7-day median limitation. Title 22 also requires that recycled water used as a source of water supply for non-restricted recreational impoundments be disinfected tertiary recycled water that has been subjected to conventional treatment. A non-restricted recreational impoundment is defined as “...an impoundment of recycled water, in which no limitations are imposed on bodycontact water recreational activities.” Title 22 is not directly applicable to surface waters; however, the Regional Water Board finds that it is appropriate to apply an equivalent level of treatment to that required by DHS’s reclamation criteria because the receiving water is used for irrigation of agricultural land and for contact recreation purposes. To protect public health, DHS recommends that discharges to receiving streams with contact recreation and less than 20:1 dilution be oxidized, coagulated, filtered and adequately disinfected to provide a median total coliform organisms concentration of 2.2 MPN/100 mL at some point in the treatment process. The stringent disinfection criteria of Title 22 are appropriate since the receiving waters, at times, do not provide a 20:1 receiving water to effluent dilution ratio. Effluent may be used for the irrigation of food crops and/or for body-contact water recreation without a 20:1 dilution. To protect the beneficial uses, the Regional Water Board finds that the wastewater must be disinfected and adequately treated to prevent disease. The principal infectious agents (pathogens) that may be present in raw sewage may be classified into three broad groups: bacteria, parasites, and viruses. Tertiary treatment, consisting of chemical coagulation, sedimentation, and filtration, has been found to remove approximately 99.5% of viruses. Filtration is an effective means of reducing viruses and parasites from the waste stream. The wastewater must be treated to tertiary standards (filtered), or equivalent, to protect contact recreational and food crop irrigation uses.”

The proposed Permit does not require tertiary treatment. Contact recreation (REC-1) in the Feather River at the point of discharge is well documented as an extensively used fishing area and lies adjacent to a Yuba City park. The public has access to the point of

discharge and there is significant documentation the point of discharge is heavily used for REC-1 uses.

The proposed Permit does not contain a mixing zone for pathogens that protects the REC-1 beneficial use at the point of discharge. The public not only has access to the Feather River within any mixing zone, contact recreational activities occur within this zone. California Water Code, section 13377, requires that: "Notwithstanding any other provision of this division, the state board and the regional boards shall, as required or authorized by the Federal Water Pollution Control Act, as amended, issue waste discharge and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary, thereto, together with any more stringent effluent standards or limitations necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance." Federal Regulation, 40 CFR 122.4 (a), (d) and (g) require that no permit may be issued when the conditions of the permit do not provide for compliance with the applicable requirements of the CWA, or regulations promulgated under the CWA, when imposition of conditions cannot ensure compliance with applicable water quality requirements and for any discharge inconsistent with a plan or plan amendment approved under Section 208(b) of the CWA.

RESPONSE: Examination of historic flows for the Feather River (1993 through 2005) above Discharge Point No. 001 indicates that the lowest recorded flows were no lower than 1,000 cfs (646 mgd). Even when the discharge reaches the design capacity of the upgraded treatment system (10.5 mgd), at least 60:1 dilution is provided, which exceeds the Department of Public Health recommendations for meeting Title 22 requirements (reclamation criteria and the equivalent of tertiary treatment). It should also be noted that, as described in Section IV.C.2.c of the Fact Sheet, that the Lower Yuba River Accord (LYRA), when adopted, will require that operating dam releases result in a minimum increase of 500 cfs in the Lower Yuba River in critical water years. The point of discharge from the Facility is downstream of the confluence between the Feather and Yuba Rivers, so the 1Q10 and 7Q10 critical low flows would increase by 500 cfs when the LYRA is officially adopted by the State Water Board (the 1Q10 and 7Q10 critical low flows would be 1,500 cfs) upstream of Discharge Point No. 001

CSPA Comment #7. Monitoring requirements. CSPA states that the proposed monitoring requirements are inadequate in accordance with Federal regulations, 40 CFR §§ 122.44(i), 122.48 and 40 CFR 122.41(j)(1), which require that NPDES permits include requirements to monitor sufficient to assure compliance with permit limitations and requirements, the mass or other measurement specified in the permit for each pollutant limited in the permit, and the volume of effluent discharged from each outfall.

Facilities that discharge wastewater are required to evaluate compliance with the limitations established in the permit. The proposed Permit states that monitoring for the discharge from ponds at point 002 will be conducted at discharge point 001. The

placement of wastewater disposal ponds within a floodplain is simply bad engineering. The permittee is responsible for providing a safe and accessible sampling point that is representative of the discharge, 40 CFR 122.41(j)(1). Allowing a wastewater discharge to go unmonitored because it is unsafe to enter the floodplain only compounds that bad judgment. The ponds should be properly closed; the City owns and operates a wastewater treatment plant that discharges directly to surface waters and the ponds are not necessary. A proper “emergency” pond could be constructed outside the floodplain if the City believes it is necessary. NPDES permits are required to include monitoring specifying the type, the interval, and the frequency sufficient to yield data which are representative of the monitored activity including, when appropriate, continuous monitoring. According to the proposed Permit’s discussion of the pond system; the ponds are utilized for storage of wastewater effluent and are the point of discharge during periods of facility maintenance and upset. Pollutant concentrations in ponds magnify as water evaporates and as stated, the ponds receive wastewater unfit to discharge at point 001. The quality of wastewater discharged from the ponds will be significantly degraded compared to the effluent discharge at point 001. The discharge at point 001 is not representative of the quality of the wastes at point 002. Failure to require monitoring at discharge point 002 blatantly violates Federal Regulations, 40 CFR §§ 122.44(i) and 122.48.

RESPONSE: As described in the response to CSPA Comment #4, appropriate controls are included in the proposed permit to regulate pond operation in the interim until the pond disposal study is completed. If the study results indicate that operation of the pond system would result in exceedance of applicable water quality objectives, then the Discharger is required to take the steps necessary, including possible closure of the ponds, to ensure future compliance.

CSPA Comment #8. Best Practicable Treatment or Control. CSPA states that by failing to require best practicable treatment and control of the Yuba City Discharge, the proposed permit grants the City of Yuba City a competitive advantage over other Central Valley dischargers by authorizing a discharge of significantly poorer water quality.

While both smaller and comparably-sized NPDES dischargers up and down the Central Valley are currently providing, or are upgrading to provide, tertiary treatment, nitrification, denitrification (reduces salt discharged), and non-chemical disinfection through ultraviolet radiation (*i.e.*, disinfection by a process that does not add salt), the proposed permit authorizes the continued discharge of what is now an essentially substandard wastewater—the basic, secondary treated wastewater of three decades ago. Pretreatment program local limits are derived based on what industrial loads to the wastewater treatment facility can be received without causing the facility to exceed its discharge limits. The poor standards proposed for application to the City’s discharge allow the City to compete unfairly against other municipalities, counties, and utility districts by enabling it to receive industrial discharges at strengths far beyond what would be allowed at other wastewater treatment facilities. In addition, maintenance of a

low-quality discharge allows the City to keep its rates low, since it will not have to pay for improvements, and potentially makes it more attractive to developers and home owners.

We have to question whether the Regional Board is colluding with the City of Yuba City to ensure that regional growth is restricted to that within Yuba City's sphere of influence. We wonder whether existing and potential dischargers to the Feather River, its tributaries (e.g., Nevada City, Grass Valley, Lake of the Pines, Lake Wildwood, Cascade Shores, Donner Summit, Olivehurst, River Highlands, Wheatland, Live Oak), and streams to which the Feather River is tributary (e.g., Sac Regional) have been notified of the proposed full allocation of assimilative capacity within the Feather River and its implications for their NPDES permits. The proposed permit must be revised to require the City of Yuba City to provide best practicable treatment and control to eliminate its competitive advantage.

RESPONSE: As described in the response to CSPA Comment #6, Regional Water Board staff believes that treatment beyond secondary is not necessary for protection of aquatic life and human health in the vicinity of the discharge to the Feather River.

CSPA Comment #9. Additive Toxicity. CSPA states that the proposed permit fails to determine reasonable potential for additive toxicity within a mixing zone as required by the Basin Plan.

The Basin Plan, at (IV-17.00), states the following:

“Where multiple toxic pollutants exist together in water, the potential for toxicological interactions exists. On a case by case basis, the Regional Water Board will evaluate available receiving water and effluent data to determine whether there is reasonable potential for interactive toxicity. Pollutants which are carcinogens or which manifest their toxic effects on the same organ systems or through similar mechanisms will generally be considered to have potentially additive toxicity. The following formula will be used to assist the Regional Water Board in making determinations:

$$\sum_{i=1}^n \frac{[\text{Concentration of Toxic Substance}]}{[\text{Toxicologic Limit for Substance in Water}]} < 1.0$$

The concentration of each toxic substance is divided by its toxicologic limit. The resulting ratios are added for substances having similar toxicologic effects and, separately, for carcinogens. If such a sum of ratios is less than one, an additive toxicity problem is assumed not to exist. If the summation is equal to or greater than one, the combination of chemicals is assumed to present an unacceptable level of toxicological risk. For example, monitoring shows that ground water

beneath a site has been degraded by three volatile organic chemicals, A, B, and C, in concentrations of 0.3, 0.4, and 0.04 mg/l, respectively. Toxicologic limits for these chemicals are 0.7, 3, and 0.06 mg/l, respectively. Individually, no chemical exceeds its toxicologic limit. However, an additive toxicity calculation shows:

$$\frac{0.3}{0.7} + \frac{0.4}{3} + \frac{0.04}{0.06} = 1.2$$

The sum of the ratios is greater than unity (>1.0); therefore the additive toxicity criterion has been violated. The concentrations of chemicals A, B, and C together present a potentially unacceptable level of toxicity.”

The Fact Sheet to the proposed permit states the following:

“Based on its review of the Discharger’s response, the Regional Water Board concludes that an adequate zone of passage for aquatic organisms exists and full initial dilution should be allowed for the acute aquatic life criterion applicable to the discharge from the Facility (note that the Regional Water Board had already agreed that dilution can be provided for chronic aquatic life and human health protection criteria).”

The calculations for determining the dilution credit are not shown, but it appears that the tentative permit proposes to fully allocate all remaining assimilative capacity in the Feather River for each constituent with a water quality based effluent limitation (WQBEL) and assimilative capacity.

The in-stream, after complete mixing, fractional toxicity or ratio for each constituent with a WQBEL based on full allocation of assimilative capacity is necessarily equal to unity. As demonstrated below, the in-stream, after complete mixing, additive effect of multiple chemicals with WQBELs based on full allocation of assimilative capacity which manifest their toxic effects on the same organ systems or through similar mechanisms must, therefore, present an unacceptable level of toxicity. Even if full allocation of assimilative capacity has not been granted, additive toxicity must still be evaluated.

Additive Toxicity—Aquatic Toxicity from Heavy Metals

The proposed permit contains the following final effluent limitations for heavy metals:

Constituent	Units	AMEL ¹	MDEL ²	CCC ^{3,4}	CMC ^{4,5}	CCC ^{3,6}	CMC ^{3,6}	MEC ⁷
-------------	-------	-------------------	-------------------	--------------------	--------------------	--------------------	--------------------	------------------

¹ Average monthly effluent limitation

² Maximum daily effluent limitation

³ Criterion continuous concentration (4-day average); numeric standard that must not be exceeded beyond the edge of the constituent-specific chronic toxicity mixing zone

⁴ Based on hardness of 32 mg/l (as CaCO₃) used in proposed permit

Copper ⁸	mg/l	50	85	3.5	4.8	2.7	3.5	16 ⁹ /67 ¹⁰
Lead ⁸	mg/l	0.61	1.23	0.75	19	0.49	13	3.3 ⁹ /1.9 ¹⁰
Zinc ⁸	mg/l	661	984	46	46	34	34	110 ⁹ /120 ¹⁰

Copper, lead, and zinc all act on aquatic organisms in the same fashion. Therefore, additive toxicity for these constituents must be considered.

Acute aquatic toxicity:

$$\left[\frac{Conc_{Cu}}{CMC_{Cu}} \right] + \left[\frac{Conc_{Pb}}{CMC_{Pb}} \right] + \left[\frac{Conc_{Zn}}{CMC_{Zn}} \right] = \left[\frac{4.8}{4.8} \right]_{Cu} + \left[\frac{19}{19} \right]_{Pb} + \left[\frac{46}{46} \right]_{Zn} = 3$$

Chronic aquatic toxicity:

$$\left[\frac{Conc_{Cu}}{CMC_{Cu}} \right] + \left[\frac{Conc_{Pb}}{CMC_{Pb}} \right] + \left[\frac{Conc_{Zn}}{CMC_{Zn}} \right] = \left[\frac{3.5}{3.5} \right]_{Cu} + \left[\frac{0.75}{0.75} \right]_{Pb} + \left[\frac{46}{46} \right]_{Zn} = 3$$

Order No. R5-2003-0089 found reasonable potential for cadmium, with an observed maximum effluent concentration of 6.4 mg/l for a sample collected 7 February 2002. In fact, Order No. R5-2003-0089 reported an average effluent cadmium concentration of 2.57 mg/l, based on the results of 29 sampling events. The criterion continuous concentration (CCC) for cadmium at a hardness of 32 mg/l is 1.0 mg/l, while the CCC for cadmium at a hardness of 23 mg/l is 0.78 mg/l. Cadmium concentrations in the Yuba City discharge will also contribute to additive toxicity.

Order No. R5-2003-0089 reported an observed maximum effluent total chromium concentration of 16 mg/l and an observed maximum upstream total chromium concentration of 7.2 mg/l. Chromium III is the most common valent state for chromium. Chromium III concentrations in the Yuba City discharge will also contribute to additive toxicity.

The proposed permit reports an observed maximum effluent nickel concentration of 15 mg/l and an observed maximum upstream nickel concentration of 10 mg/l. The CCC for nickel at a hardness of 32 mg/l is 19 mg/l, while the CCC for nickel at a hardness of 23 mg/l is 15 mg/l. Nickel concentrations in the Yuba City discharge will also contribute to additive toxicity.

⁵ Criterion maximum concentration (1-hour average); numeric standard that must not be exceeded beyond the edge of the constituent specific acute toxicity mixing zone

⁶ Based on hardness of 23 mg/l (as CaCO₃) from 3 January 2006 (see Attachment G to tentative permit)

⁷ Maximum effluent concentration

⁸ Total recoverable

⁹ From proposed permit

¹⁰ From R5-2003-0089

Order No. R5-2003-0089 reported an observed maximum effluent silver concentration of 0.35 mg/l. The maximum observed concentration was detected above the MDL of 0.12 mg/l, but below the quantification level. Silver concentrations in the Yuba City discharge will also contribute to additive toxicity.

The sum of the toxicity ratios for water in the Feather River, following complete mixing and beyond the boundary of any mixing zone, is greater than unity and, therefore, denotes an unacceptable risk of acute (lethal) aquatic toxicity within the Feather River. This alone is appalling, but the fact that Regional Board staff are proposing this for a stream designated as critical habitat and 303(d)-listed for unknown toxicity is both outrageous and unconscionable. Failure to correct the proposed permit will likely result in a take of threatened or endangered species as a direct outcome of the additive toxicity allowed under the proposed permit.

The proposed permit must be revised to reduce the effluent limitations for heavy metals (*i.e.*, cadmium, chromium III, copper, lead, nickel, silver, and zinc) to levels that, when additive toxicity for these aquatic life toxicants is considered, will not result in acute or chronic toxicity.

Additive Toxicity—Human Carcinogenicity

The proposed permit contains the following final effluent limitations for carcinogens (cancer-causing compounds):

Constituent	Units	AMEL ¹¹	MDEL ¹²	HH _{water+org} ¹³	MEC ¹⁴
Bis (2-ethylhexyl) phthalate	mg/l	269	820	1.8	36 ¹⁵ /149 ¹⁶
Chlorodibromomethane	mg/l	76	166	0.41	0.88 ¹⁵ /1.4 ¹⁶
Dichlorobromomethane	mg/l	111	280	0.56	4 ¹⁵ /7.6 ¹⁶
Tetrachloroethylene	mg/l	164	514	0.8	8 ¹⁵ /7.7 ¹⁶

Bis (2-ethylhexyl) phthalate; chlorodibromomethane; dichlorobromomethane; TCDD-equivalents, and tetrachloroethylene are all carcinogens. Therefore, additive toxicity for these constituents must be considered.

Carcinogenicity Based on Consumption of Both Water and Organisms:

¹¹ Average monthly effluent limitation

¹² Maximum daily effluent limitation

¹³ Human health based on increased carcinogenicity risk of 1×10^{-6} and consumption of both water and organisms

¹⁴ Maximum effluent concentration

¹⁵ From proposed permit

¹⁶ From R5-2003-0089

$$\left[\frac{Conc}{HH} \right]_{bis-2} + \left[\frac{Conc}{HH} \right]_{CDBM} + \left[\frac{Conc}{HH} \right]_{DCBM} + \left[\frac{Conc}{HH} \right]_{PCE} = \left[\frac{1.8}{1.8} \right]_{bis-2} + \left[\frac{0.41}{0.41} \right]_{CDBM} + \left[\frac{0.56}{0.56} \right]_{DCBM} + \left[\frac{0.8}{0.8} \right]_{PCE} = 4$$

The sum of the toxicity ratios for water in the Feather River, following complete mixing and beyond the boundary of any mixing zone, is greater than unity and, therefore, denotes an unacceptable risk of carcinogenicity within the Feather River.

In addition, the tentative permit fails to include effluent limitations for other carcinogens present in the discharge with reasonable potential to cause or contribute to an excursion of water quality standards, including the following:

- Arsenic
- Chloroform
- 2,3,7,8-TCDD equivalents
- MTBE
- Pentachlorophenol
- Trichloroethylene
- 2,4,6-Trichlorophenol

Order No. R5-2003-0089 reported an observed maximum effluent arsenic concentration of 44.9 mg/l from a sample collected 25 January 2001 and an observed maximum upstream total chromium concentration of 2.0 mg/l from a sample collected 9 December 2002. The primary maximum contaminant level is 10 mg/l. Arsenic concentrations in the Yuba City discharge will also contribute to additive carcinogenic toxicity.

Order No. R5-2003-0089 reported an observed maximum effluent chloroform concentration of 46 mg/l from a sample collected 2 September 1993 and a mean effluent chloroform concentration of 10.96 mg/l, based on 34 samples. The proposed permit reports an observed maximum effluent chloroform concentration of 18 mg/l. The equivalent concentration for the Cal/EPA Office of Environmental Health Hazard Assessment (OEHHA) one-in-a-million cancer potency factor is 1.1 mg/l. In other words, on average, the Yuba City discharge exceeds the one-in-a-million cancer risk number by an order of magnitude. Chloroform concentrations in the Yuba City discharge will certainly contribute to additive carcinogenic toxicity.

Order No. R5-2003-0089 reported an observed maximum effluent methyl tertiary butyl ether (MTBE) concentration of 7.51 mg/l from a sample collected 23 June 1999. MTBE concentrations in the Yuba City discharge will contribute to additive carcinogenic toxicity.

Order No. R5-2003-0089 reported an observed maximum effluent pentachlorophenol concentration of 15.3 mg/l from a sample collected 2 August 2000 and a mean effluent pentachlorophenol concentration of 4.08 mg/l, based on 22 samples. The *California Toxics Rule* (CTR) pentachlorophenol criterion for protection of human health based on a one-in-a-million cancer risk for waters from which both water and aquatic organisms are consumed is 0.28 mg/l. In other words, on average, the Yuba City discharge exceeds the one-in-a-million cancer risk number by a factor of 14. Pentachlorophenol concentrations in the Yuba City discharge will certainly contribute to additive carcinogenic toxicity.

Order No. R5-2003-0089 reported an observed maximum effluent trichloroethylene concentration of 3.2 mg/l from a sample collected 26 September 2001. The CTR trichloroethylene criterion for protection of human health based on a one-in-a-million cancer risk for waters from which both water and aquatic organisms are consumed is 2.7 mg/l. Trichloroethylene concentrations in the Yuba City discharge will contribute to additive carcinogenic toxicity.

Order No. R5-2003-0089 reported an observed maximum effluent 2,4,6-trichlorophenol concentration of 7.8 mg/l from a sample collected 2 September 1993 and a mean effluent 2,4,6-trichlorophenol concentration of 2.96 mg/l, based on 22 samples. The CTR 2,4,6-trichlorophenol criterion for protection of human health based on a one-in-a-million cancer risk for waters from which both water and aquatic organisms are consumed is 2.1 mg/l. 2,4,6-Trichlorophenol concentrations in the Yuba City discharge will contribute to additive carcinogenic toxicity.

The proposed permit states that three 2,3,7,8-TCDD equivalents (dioxin and furan congeners) were detected in the discharge and that the maximum observed effluent 2,3,7,8-TCDD equivalents concentration was 1.78×10^{-7} mg/l, as compared to the CTR criterion of 1.3×10^{-8} mg/l. The presence of these congeners in the Yuba City discharge will contribute to additive carcinogenic toxicity.

All told, this represents an entirely unacceptable risk of increased rates of cancer for individuals consuming fish and/or water from the Feather River downstream of the discharge and possibly from the Sacramento River as well. The proposed permit must be revised to reduce the effluent limitations for carcinogens to levels that, when additive toxicity for carcinogens is considered, will not result in a combined increased cancer risk rate of more than one-in-a-million.

RESPONSE: Regional Water Board staff acknowledges the potential impact to aquatic life and human health as a result of additive toxicity. This impact would particularly be expected when discharges of the pollutants of concern (e.g., all carcinogens) are discharged at the same time and at levels that exceed applicable water quality objectives during critical low flow times. An accurate evaluation of additivity would therefore require extensive data collection and analysis. Alternatively, the Regional Water Board uses several mechanisms within an NPDES permit to protect against toxic and carcinogenic effects. For this Discharger, the Regional Water Board establishes water quality-based effluent limitations using conservative assumptions (e.g., use of critical low flows) designed to be protective of receiving water quality (based on applicable water quality objectives established to protect against acute and chronic toxicity and human health carcinogenicity). In addition, the Regional Water Board requires whole effluent toxicity testing designed specifically to determine whether the combination of pollutants contained in a discharge result in toxic effects.

CSPA Comment #10. Compliance Schedules. CSPA states that the proposed npdes permit authorizes a schedule of compliance for aluminum, electrical conductivity, gamma-bhc (lindane), and iron contrary to Basin Plan requirements.

The proposed permit includes a schedule of compliance for aluminum, gamma-BHC or lindane (an organochlorine pesticide), and iron. The final effluent aluminum limitations in the proposed permit are based on the Basin Plan's narrative toxicity objective and U.S. EPA's 1988 National Recommended Ambient Water Quality Criteria for protection of freshwater aquatic life for aluminum. While the proposed permit lacks a final effluent limitation for electrical conductivity, reasonable potential to exceed the Basin Plan's site-specific electrical conductivity objective for the lower Feather River of 150 mmhos/cm as a 90th percentile was determined. The final gamma-BHC effluent limitation in the proposed permit is based on the Basin Plan objective that total chlorinated hydrocarbon pesticides shall not be present in the water column at detectable concentrations. The final effluent iron limitation in the proposed permit is based on the Basin Plan's chemical constituents objective and the California primary maximum contaminant level for iron. Note that these objectives were all in effect prior to 25 September 1995.

The Basin Plan, in its *Policy for Implementation of Water Quality Objectives*, states the following:

"In no event shall an NPDES permit include a schedule of compliance that allows more than ten years (from the date of adoption of the objective or criteria) for compliance with water quality objectives, criteria or effluent limitations based on the objectives or criteria. Schedules of compliance are authorized by this provision only for those water quality objectives or criteria adopted after the effective date of this provision [25 September 1995]."

The State Water Resources Control Board (State Board), in its Water Quality Order No. 2007-0004, concluded the following:

□ Conclusion III.12: *"Compliance schedules, if authorized, must have an endpoint that is consistent with the compliance schedule authorization."*

□ Conclusion III.19: *"The compliance schedule authorization in the San Francisco Bay Basin Plan does not authorize a compliance schedule for numeric objectives that predated the effective date of the authorization provision and that have not been revised since the effective date of the objectives."*

U.S. EPA, in a letter dated 20 April 2007 from Alexis Strauss, Director of Water Programs, to Tom Howard, then Acting Executive Director of State Board, stated the following:

"We reiterate our conclusion that inclusion of the entire compliance schedule, including the final effluent limitation, in the enforceable permit provisions is necessary to ensure compliance with the Clean Water Act (CWA) and the

implementing regulations. Specifically, the CWA defines a compliance schedule as an "...enforceable sequence of actions or operations leading to compliance with an effluent limitation...." [CWA section 502(17)]. In order for the provisions to be enforceable, they need to be included in the permit requirements...To ensure consistency with all these requirements, it is necessary to include the whole compliance schedule in the enforceable permit provisions...We have now concluded that it is also necessary to include these provisions in the permit itself in order to meet the statutory and regulatory requirements. We have reached this conclusion as a result of comprehensive re-analysis of the CWA and EPA's implementing regulations prompted by increased scrutiny of compliance schedules in general, and the potential use of longer compliance schedules..."

The proposed permit must be revised to require immediate compliance with the Basin Plan objectives for iron, organochlorine pesticides, electrical conductivity, and aluminum (narrative toxicity objective). If a compliance schedule is deemed necessary, it must be appropriately placed in a Time Schedule Order or a Cease and Desist Order.

RESPONSE: There are a number of Basin Plan narrative objectives that are the basis for numeric effluent limitations. The two most common narrative objectives impacting NPDES permits are the "No Toxics in Toxic Concentrations" standard, and the "Taste and Odor" standard. The Basin Plan allows the use of compliance schedules for water quality objectives adopted after 1995 and USEPA and the State Water Board have allowed such compliance schedules based on a "new interpretation" of an existing objective. Compliance schedules may be included in permits for effluent limitations based upon "new interpretations" of narrative water quality objectives. An August 2005 Second District California Appeals Court Ruling [CBE v. SWRCB regarding the Avon Refinery (aka, Tosco Refinery)] interpreted the scope of "new interpretation". Any effluent limitation based upon a narrative water quality objective is a "new interpretation" that will allow a time schedule to be placed in an NPDES permit when that effluent limitation is first applied to the Discharger.

The compliance schedules that are included for aluminum and organochlorine pesticides are based on a new interpretation of narrative objectives. Further, because these parameters were vacated in accordance with Order WQO 2004-0013, this Order constitutes the first application of an effluent limitation applicable to the Discharger.

Regional Water Board staff will be proposing revisions to the tentative NPDES permit to be presented for the Board's consideration that will eliminate the proposed compliance schedule for iron and manganese. Both proposed limitations for iron and manganese are established at levels in which the Discharger is able to immediately comply. The effluent limitations for iron and manganese are based on secondary drinking water standards. The Department of Public Health regulations apply an annual average to implement secondary

drinking water standards. The proposed effluent limit for iron has been revised, consistent with antibacksliding requirements, and based on the new limitation, the Discharger is not expected to violate the new effluent limitation and the time schedule order is no longer necessary. The effluent limitation for manganese is a performance-based effluent limitation which is based on existing levels of manganese over the last 3 years. Specifically, the 95th percentile concentration of the effluent data (186.68 µg/L, assuming a log-normal distribution) was used to establish the performance-based effluent limitation for manganese. Regional Water Board staff is establishing an annual average of 200 µg/L (186.68 µg/L rounded up) for consistency with the effluent limitation for iron and DPH's recommended application for secondary drinking water standards.

The applicable water quality objective for EC is the numeric objective for the Feather River contained in the Basin Plan. Order R5-2003-0085 has an effluent limit that states "The 30-day 90th percentile effluent electrical conductivity shall not exceed 830 µmhos/cm." The proposed permit contains a final effluent limit that states: "The monthly average electrical conductivity (EC) of effluent discharged from Discharge Point No. 001 shall not exceed 1000 umhos/cm." The proposed permit also contains a receiving water limit, consistent with the Basin Plan, which states that the receiving water EC shall not exceed 150 µmhos/cm as a 90 percentile based on a 10-year rolling average.

CSPA objects to the use of the 10 year rolling average. Regional Water Board staff recently reviewed the historical information about the EC objective for the Feather River contained in the Basin Plan. The previous Basin Plan language on EC for the Feather River include a 10 year averaging period, but in the revisions to the Basin Plan, the averaging period was inadvertently omitted from the objective for the Feather River. The Basin Plan includes EC objectives for a portion of the Sacramento River and this objective includes an averaging period based on 10 years of records. The Feather River objective is placed in the same section of the Basin Plan as the Sacramento River objective. It is reasonable, therefore, to apply a 10-year rolling average to the Feather River consistent with the Sacramento River EC objectives.

A late revision is proposed to revise the interim EC limitation to a final monthly average EC effluent limitation of 1,000 µmhos/cm and add a receiving water limitation that corresponds with the Basin Plan numeric EC objective of 150 umhos/cm as a 90th percentile based on a 10 year running average.

CSPA Comment #11. Hardness Value. CSPA states that the proposed permit utilizes an inappropriate hardness value for use in assessing reasonable potential, evaluating assimilative capacity, and determining effluent limitations.

The Fact Sheet to Order No. R5-2006-0096, the NPDES permit for the Linda County Water District (LCWD) Wastewater Treatment Plant (WWTP), included the following:

“The United States Geological Survey (USGS) maintains flow- and water quality monitoring stations on the Feather River at Gridley and on the Yuba River near Marysville. These two stations represent the nearest upstream, continuously operated monitoring stations. On 8 July 2003, at 12:30 p.m., a hardness value of 30 mg/L (as CaCO₃) was measured at the “Feather River at Gridley” station with a flow of 10149 cfs. On the same day, at noon, a hardness value of 32 mg/L (as CaCO₃) was measured at the “Yuba River near Marysville” station with a flow of 1516 cfs. The flow-weighted average hardness value is 30 mg/L (as CaCO₃). Both hardness values were determined using Standard Method 2340B. According to Standard Methods for the Examination of Water and Wastewater, “Method 2340B, hardness by calculation, is applicable to all waters and yields the higher accuracy.”

In addition, State Board Order WQO 2004-0013 found (p. 8) the following:

“The SIP does not discuss the manner in which hardness is to be ascertained. The value selected should provide protection for all times of discharge under varying hardness conditions. Thus, it was appropriate for the Regional Board to use the worst-case observed minimum hardness. The City also claims that hardness is a specific type of translator and that the SIP provides statistical values for the median and 90th percentile to determine the appropriate value. The City is incorrect.”

Attachment G. to the proposed permit shows upstream Feather River hardness values as low as 23 mg/l, from a sample collected 3 January 2006. This value of 23 mg/l is not entirely uncommon for the Feather River, as Attachment G also shows the following upstream receiving water hardness values:

1 November 2005	32 mg/l
8 June 2006	29 mg/l
27 January 2006	31 mg/l
7 February 2006	25 mg/l
3 February 2006	32 mg/l
17 May 2006	28 mg/l
3 January 2006	23 mg/l

The impact of the selected hardness on criteria is shown below (all metals are shown as total recoverable; all units are in mg/l):

	CCC ₂₃	CCC ₃₂	CMC ₂₃	CMC ₃₂	B ₂₀₀₃	B ₂₀₀₇	MEC ₂₀₀₃	MEC ₂₀₀₇
Cadmium	0.78	1.0	0.89	1.2	0.29	0.29	6.4	0.54
Copper	2.7	3.5	3.5	4.8	3.3	6.5	67	16
Chromium III	62	81	520	680	7.2	--	16	12
Lead	0.49	0.75	13	19	ND	1	1.9	3.3
Nickel	15	20	140	180	10	10	8	15
Silver	--	--	0.32	0.57	ND	ND	0.35	0.15
Zinc	34	46	34	46	40	5.5	120	110

Note the reasonable potential for cadmium, and the lack of assimilative capacity for copper, lead, and zinc.

We are curious as to why and how the dynamic modeling mentioned in the proposed permit is able to disregard the lack of assimilative capacity for copper, lead, and zinc but is apparently unable to consider the variable hardness of the receiving stream.

The proposed permit must be revised to be protective of aquatic life by using the appropriate minimum receiving water hardness value of 23 mg/l in determining reasonable potential and in developing effluent limitations.

RESPONSE: Effluent limitations for a discharge must be set to protect the beneficial uses of the receiving water for all discharge conditions. In the absence of the option of including condition-dependent, “floating” effluent limitations that are reflective of actual hardness conditions at the time of discharge, effluent limitations must be set using a reasonable worst-case condition in order to protect beneficial uses for all discharge conditions. Recent studies indicate that using the lowest recorded receiving water hardness for establishing water quality criteria is not protective of the receiving water under various mixing conditions. The Discharger requested the use of hardness values within or at the boundary of mixing zones and at receiving water design flow conditions (i.e., at critical low flows). Considering the State Water Board conclusions in Order WQO 2004-0013 regarding which hardness value to use, and the technical argument provided by the Discharger, the Regional Water Board used a reasonable worst case hardness value for calculating applicable water quality objectives. The Regional Water Board has used this approach in other adopted Orders (see for example Order No. R5-2002-0083). In particular, the Regional Water Board agreed with the Discharger that receiving water hardness is generally flow-related; lower receiving water flows yield higher hardness. Based on upstream receiving water data provided by the Discharger for the period January 2002 through January 2007, a reasonable worst case hardness value of 32 mg/L (as CaCO₃) was used to derive applicable hardness-dependent water quality objectives. This value from 1 November 2005 represents the lowest reported hardness value in the Feather River upstream of the facility discharge during

periods of flow less than the harmonic mean flow of 3,600 cubic feet per second (cfs).

The dynamic model used by the Discharger to establish effluent limitations, as described in Section IV.C.4.d in the Fact Sheet, did consider the variable hardness of the receiving stream (using data from January 2002 through June 2006). The detailed methodology used by the Discharger is summarized in the 23 February 2007 technical memorandum entitled "Dynamic Model for the Derivation of Select WQBELs for the Yuba City WRP" from Larry Walker Associates to Bill Lewis, Mike Paulucci, and Maria Solis of the Yuba City WRP, which is contained in the public record.

CSPA Comment #12. Use of Statistical Multipliers. CSPA states that the proposed permit includes an inadequate reasonable potential analysis and inadequate effluent limitations by using incorrect statistical multipliers.

Federal regulations, 40 CFR §122.44(d)(1)(ii), state "*when determining whether a discharge causes, has the reasonable potential to cause, or contributes to an in-stream excursion above a narrative or numeric criteria within a State water quality standard, the permitting authority shall use procedures which account for existing controls on point and nonpoint sources of pollution, the variability of the pollutant or pollutant parameter in the effluent, the sensitivity of the species to toxicity testing (when evaluating whole effluent toxicity), and where appropriate, the dilution of the effluent in the receiving water.*" Emphasis added.

Attachment F: The reasonable potential analyses for CTR constituents fail to consider the statistical variability of data and laboratory analyses as explicitly required by the federal regulations. For example, a multiplier of 1 was used for all constituents instead of the required multiplier factors necessary to properly evaluate reasonable potential. The procedures for computing variability are detailed in Chapter 3, pages 52-55, of U.S. EPA's *Technical Support Document For Water Quality-based Toxics Control* (TSD).

The observed maximum effluent concentration (MEC) is the highest detected effluent concentration, but not necessarily the actual highest effluent concentration. As a result of using the multiplier of 1 and the artificially restricted data set of three years used in determining the maximum effluent concentration, there are constituents that do have reasonable potential that do not have effluent limitations in the proposed permit.

The reasonable potential analyses for CTR constituents are flawed and must be recalculated. The fact that the SIP illegally ignores this fundamental requirement does not exempt the Regional Board from its obligation to consider statistical variability in compliance with federal regulations. Using the most complete data set available (*i.e.*, all available data) yields the greatest confidence that the observed maximum effluent concentration is somewhere near the actual maximum effluent concentration.

Using the statistical methods demonstrated in the TSD, one finds that in order to be 99% confident that the highest detected value is the actual highest value, a data set of at least 459 analytical results is needed. Monthly monitoring for the restricted three-year window gets only 36 results and about a 30% confidence level that the observed maximum effluent concentration is greater than the 99th percentile of the actual effluent concentrations.

Since federal regulations require effluent limits for each constituent that has reasonable potential to exceed a water quality objective, it is critical to use the fullest data set possible. The fewer results used in the reasonable potential analysis, the greater the likelihood that the permit will fail to include required and necessary effluent limitations.

RESPONSE: Regional Water Board staff performed a reasonable potential analysis to determine the proposed effluent limitations in accordance with the procedures specified in the SIP, by comparing the maximum effluent concentration of a pollutant to the applicable water quality criteria/objective. CSPA is commenting on the validity of the SIP to determine reasonable potential to cause or contribute to an exceedance of a water quality standard. The comment is specifically focused on the use of variable multiplier factors that represent the statistical variation and standard deviation of data used for the analysis outlined in the USEPA *Technical Support Document for Water Quality Based Toxics Control* (TSD), compared to the use of the default multiplier of “1” in the SIP.

NPDES program staff is consistently using the SIP to evaluate reasonable potential for CTR and non-CTR constituents. For the constituents in which it was determined that reasonable potential exist, effluent limitations were calculated utilizing the statistical TSD method and taking statistical variation into account to calculate numerical limitations. Additionally, maximum daily interim limitations are also calculated using the statistical TSD method.

CSPA Comment #13. Representative Effluent Data. CSPA states that the proposed permit fails to utilize all valid, reliable, and representative effluent data in conducting a reasonable potential and effluent limitation derivation calculations contrary to U.S. EPA’s interpretation of Federal Regulations, 40 CFR 122.44(d).

The proposed permit states (p. F-27), the following with respect to the data set used in assessing reasonable potential and in determining effluent limitations:

“The RPA was based on data from July 2003 through July 2006, which is the range of data the Discharger submitted as part of its Report of Waste Discharge. Additional data outside of this range was also analyzed where there was inadequate data to perform an analysis. This was specifically the situation for receiving water background concentrations for metals, pesticides, and other non-

conventional pollutant parameters (e.g., nutrients). The same data set for the receiving water background concentrations were used in developing WQBELs.”

Federal Regulations, 40 CFR 122.44(d), requires that limits must be included in permits where pollutants will cause, have reasonable potential to cause, or contribute to an exceedance of the State’s water quality standards. U.S. EPA has interpreted 40 CFR 122.44(d) in *Central Tenets of the National Pollutant Discharge Elimination System (NPDES) Permitting Program* (Factsheets and Outreach Materials, 08/16/2002) that although States will likely have unique implementation policies, there are certain tenets that may not be waived by State procedures. These tenets include that “where valid, reliable, and representative effluent data or instream background data are available they MUST be used in applicable reasonable potential and limits derivation calculations. Data may not be arbitrarily discarded or ignored.”

State Board Order WQO 2004-0013 found (p. 7) the following:

“There is no basis for the City’s contention that older [than 4.5 years] data should be eliminated from review in determining reasonable potential. There is also no basis for the City’s claims that all “outlier” data, which are higher than most other data points, should be discarded. While outlier data that are shown to be unreliable should be discarded, such data are not unreliable simply because they are high. Because of the nature of publicly owned treatment works (POTWs) as receptacles of waste from numerous sources, there is no basis to claim that older data will not recur. Moreover, the use of a larger set of sample data improves the accuracy of projected concentrations, and such data should be included to show trends.”

State Board Order WQO 2004-0013 concluded (p. 23) the following:

“It is appropriate for the Regional Board to consider all available monitoring data in developing a permit for POTWs, including data older than 4.5 years and “outlier” data.”

The proposed permit must be revised to use all available and relevant monitoring data to assess reasonable potential, assimilative capacity, and to calculate final effluent limitations, as required by federal regulations and as directed by the State Board.

RESPONSE: On 16 May 2005, the Alameda County Superior Court issued a ruling on the appeal of the City of Woodland NPDES Permit directing that only 3 years of data be used in the RPA for the City’s permit. In part based on this ruling, the State Water Board has advised against the use of data representing periods of time greater than 4.5 years, and generally recommends the use of the most recent 3 years of data to perform a RPA. The primary reason for the use of more recent data is that it is considered more representatives of the current discharge situations, as well as reflects data derived using improved analytical

methods and QA/QC protocols. The data used for the RPA for this Order was considered the most valid, reliable, and representative effluent data and instream background data available.

CSPA Comment #14. Treatment beyond Minimum Federal Standards. CSPA states that the proposed permit fails to impose requirement for additional treatment beyond minimum federal standards for discharge to water quality limited segment as required by Basin Plan.

The Basin Plan includes a list of Water Quality Limited Segments (WQLSs), which are defined as “...those sections of lakes, streams, rivers or other fresh water bodies where water quality does not meet (or is not expected to meet) water quality standards even after the application of appropriate limitations for point sources (40 CFR 130, et seq.).” The Basin Plan also states that [a]dditional treatment beyond minimum federal standards will be imposed on dischargers to WQLSs.” The lower Feather River is listed as a WQLS for mercury, toxicity, Group A pesticides, and toxaphene. The lower Feather River is listed in the 303(d) list of impaired water bodies for diazinon, Group A pesticides, mercury, and unknown toxicity.”

The proposed permit fails to impose any additional treatment requirements beyond the minimum federal standards of secondary treatment. The proposed permit must be revised to comply with the Basin Plan and federal regulations.

RESPONSE: The potential source of group A pesticides listed in the 2006 303(d) listing for the Feather River is agriculture. The potential sources for mercury are listed as resource extraction and sources unknown. Sources are listed as unknown for unknown toxicity and chlorpyrifos. Toxaphene has been removed from the 303(d) list for the lower Feather River. Further, TMDLs for these WQLSs have yet to be completed, and therefore wasteload allocations, if any, for point sources have yet to be determined. Due to the uncertainty regarding the specific need for future controls by the City of Yuba City, this Order requires compliance with applicable water quality objectives, but does not require the installation of additional treatment. To the extent that the Discharger can not achieve the resultant effluent limitations, additional treatment or other controls will be required.

CSPA Comment #15. Lack of Final Effluent Limitations. CSPA states that the proposed permit fails to include enforceable, protective final effluent limitations for electrical conductivity and 2,3,7,8-TCDD and Congeners or Equivalents and instead includes requirements to conduct further studies contrary to U.S. EPA’s interpretation of Federal Regulation, 40 CFR 122.44(d).

Federal Regulations, 40 CFR 122.44(d), requires that limits must be included in permits where pollutants will cause, have reasonable potential to cause, or contribute to an exceedance of the State’s water quality standards. U.S. EPA has interpreted 40 CFR

122.44(d) in *Central Tenets of the National Pollutant Discharge Elimination System (NPDES) Permitting Program* (Fact sheets and Outreach Materials, 08/16/2002) that although States will likely have unique implementation policies there are certain tenets that may not be waived by State procedures. These tenets include that “*where calculations indicate reasonable potential, a specific numeric limit MUST be included in the permit. Additional “studies” or data collection efforts may not be substituted for enforceable permit limits where “reasonable potential” has been determined.*”

The proposed Permit, Fact Sheet, discussion of each Electrical Conductivity and 2,3,7,8-TCDD shows the pollutants present a reasonable potential to exceed water quality standards and objectives which obligates derivation (40 CFR 122.44) of a protective Effluent Limitation. The proposed Permit instead requires studies of these constituents contrary to 40 CFR 122.44 and US EPA’s *Central Tenets of the National Pollutant Discharge Elimination System (NPDES) Permitting Program*.

RESPONSE: The Code of Federal Regulations (CFR), Title 40, Section 122.44 (d)(1)(i) requires NPDES permits to contain effluent limitations that “control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality.” 40 CFR Section 122.44 (d)(1)(vii) requires that “[t]he level of water quality to be achieved by limits on point sources established under this paragraph is derived from, and complies with all applicable water quality standards.”

With respect to EC, see response to CSPA Comment #10.

The California Toxics Rule (CTR) identifies only one dioxin, 2,3,7,8-TCDD, in the list of priority pollutants for which effluent limits are to be established. The CTR includes a criterion for 2,3,7,8-TCDD of 0.013 pg/L for the protection of human health based on a one-in-a-million cancer risk. Sixteen other dioxin compounds (congeners), produce similar toxicological responses as 2,3,7,8-TCDD, but have varying potencies. There are no formally promulgated numeric water quality criteria for these other “dioxin-like” congeners. Dioxin congeners appear to be ubiquitous (i.e., ever-present). They exist in the environment worldwide, particularly in the water, soils and sediment. Dioxins enter the atmosphere through aerial emissions and widely disperse through a number of processes, including erosion, runoff, and volatilization from land or water. According to rulemaking documents in development of the SIP, USEPA staff indicated in a presentation to a public forum that air deposition is a major source of dioxins in soil, and soil erosion is a major source of dioxins in water.

The State Water Board State Implementation Plan (SIP) requires collection of data for all 17 dioxin-like congeners and reporting of the data using the toxic

equivalency factors (TEFs) listed in the SIP method for a three-year monitoring period. The SIP states: "The purpose of the monitoring is to assess the presence and amounts of the congeners being discharged to inland surface waters, enclosed bays, and estuaries for the development of a strategy to control these chemicals in a future multi-media approach." To date, this multi-media control strategy has not been developed.

The Discharger has not detected the CTR form 2,3,7,8-TCDD in the effluent. The Discharger has detected non-CTR congeners in its effluent, but at levels which can be only be estimated and not quantified with confidence. There is currently no adequate data indicating that the CTR and non-CTR forms of dioxin in the receiving water are at concentrations that may threaten beneficial uses. Regional Water Board staff believes that there is insufficient data to determine if a water-quality based effluent limitation is appropriate (i.e., feasible). The site-specific studies required in the proposed permit are intended to gather additional information to (i) further investigate the frequency or significant detections of any congener, (ii) evaluate the threat to beneficial uses, and (iii) determine the appropriateness of effluent limitations. The proposed permit exceeds the SIP monitoring requirements by requiring quarterly monitoring of all seventeen dioxin congeners for eight consecutive quarters following the effective date of this proposed permit, then annual monitoring thereafter. The proposed permit also requires the Discharger to implement measures to evaluate and reduce detected dioxin congeners.

CSPA Comment #16. Nitrates Effluent Limitation. CSPA states that the proposed permit fails to include an effluent limitation for nitrate despite sparse data contrary to U.S. EPA's Interpretation of Federal Regulation, 40 CFR 122.44(d).

Federal Regulations, 40 CFR 122.44(d), requires that limits must be included in permits where pollutants will cause, have reasonable potential to cause, or contribute to an exceedance of the State's water quality standards. US EPA has interpreted 40 CFR 122.44(d) in *Central Tenets of the National Pollutant Discharge Elimination System (NPDES) Permitting Program* (Factsheets and Outreach Materials, 08/16/2002) that although States will likely have unique implementation policies there are certain tenets that may not be waived by State procedures. These tenets include that "*where the preponderance of evidence clearly indicates the potential to cause or contribute to an exceedance of State water quality standards (even though the data may be sparse or absent) a limit MUST be included in the permit.*"

As stated in the Fact Sheet to Order No. R5-2003-0089,

"Untreated domestic wastewater contains ammonia. Nitrification is a biological process that converts ammonia to nitrite and nitrite to nitrate, and denitrification is a process that converts nitrate to nitrogen gas, which is then released to the atmosphere. Wastewater treatment plants commonly use nitrification and

denitrification processes to remove ammonia, nitrate, and nitrite from the waste stream. Inadequate or incomplete nitrification or denitrification may result in the discharge of ammonia, nitrate, or nitrite to the receiving stream in unacceptable concentrations.

For waters designated as having the beneficial use of municipal and domestic supply (MUN), the Basin Plan includes a water quality objective that water “*shall not contain concentrations of chemical constituents in excess of the maximum contaminant levels (MCLs) specified in the following provisions of Title 22 of the California Code of Regulations...: Tables 64431-A (Inorganic Chemicals)...*”.

U.S. EPA has developed a primary MCL and an MCL goal of 1,000 mg/l for nitrite (as nitrogen). The primary MCL listed in Title 22 of the California Code of Regulations (CCR), Table 64431-A, is also 1,000 mg/l for nitrite as nitrogen. For nitrate, U.S. EPA has developed Drinking Water Standards (10,000 mg/l as Primary Maximum Contaminant Level) and Ambient Water Quality Criteria for protection of human health (10,000 mg/l for non-cancer health effects). Title 22 CCR, Table 64431-A, also includes a primary MCL of 10,000 mg/l for the sum of nitrate and nitrite, measured as nitrogen. Recent toxicity studies have indicated a possibility that nitrate is toxic to aquatic organisms. The conversion of ammonia to nitrites and the conversion of nitrites to nitrates present a reasonable potential for the discharge to exceed the primary maximum contaminant levels for nitrite and the sum of nitrite and nitrate.”

Reasonable potential for the Yuba City discharge to exceed the California primary maximum contaminant level for nitrate exists and an effluent limitation for nitrate is required. The proposed permit must be revised to include an effluent limitation for nitrate.

RESPONSE: According to the data provided by the Discharger for the period July 2003 through June 2006, the maximum nitrate concentration was reported as 4.8 mg/l ($\text{NO}_3\text{-N}$), which is well below the human health protection criterion for nitrate. Also, over 60 percent of the 186 samples for nitrate were reported as below reported analytical detection levels (0.1 mg/l). The maximum nitrate-nitrite concentration was reported as 4.9 mg/l ($\text{NO}_3\text{-N}$), which is also well below the applicable human health protection criterion. Based on this data, the Regional Water Board supports its decision to not establish effluent limitations for nitrate.

CSPA Comment #17. Assimilative Capacity. CSPA states that the proposed permit unnecessarily authorizes the use of more assimilative capacity than the discharger needs, thereby violating the Resolution 68-16 Requirement that degradation be in the best interest of the people of the State of California.

Comparison of final limits included in proposed permit to observed maximum effluent concentrations for the permitted discharge:

Constituent	AMEL	MDEL	Observed MEC
Chlorodibromomethane	76	166	0.88
Copper, Total Recoverable	50	85	16
Cyanide, Total (as CN)	24/	48/	9.4
Dichlorobromomethane	111	280	4.0
Diethyl Phthalate	10/	21/	3.7
Tetrachloroethylene	164	514	8.0
Zinc, Total Recoverable	661	984	110
Ammonia, Total (as N)	31	60	45
Molybdenum, Total Recoverable	1,999	--	16
Nitrate, Total (as N)	221	--	1.4

It is inconceivable that the resultant degradation of the Feather River from the permitting of concentrations so far in excess of what is actually needed by the City to avoid upgrades is somehow in the best interest of the people of the State of California.

We note that while the Fact Sheet to the proposed permit purports to compare proposed effluent limitations with effluent limitations included in Order No. R5-2003-0089 and effluent monitoring data, the permit writer fails to include this information for certain constituents such as nitrate and nitrite—perhaps to avoid the professional embarrassment of having to explain, given the typical municipal wastewater total nitrogen concentration range of 20 mg/l to 60 mg/l, the illogical, unjustified, and unnecessary inclusion of a nitrite limitation of 221 mg/l (as N) for a supposedly nutritionally-dilute municipal and industrial wastewater discharge.

If the permit writer is reluctant to use standard scientific rounding conventions because rounding up would result in authorization of pollutant discharges in quantities that would result in in-stream exceedances of water quality objectives, perhaps that's an indication...

RESPONSE: See response to CSPA Comment #2 and Comment #24.

There were several parameters in Order No. R5-2003-0085 that were not applicable during the previous permit term due to the State Water Board remand (e.g., nitrate-nitrite and nitrite). Based on new data and information provided by the Discharger during the previous permit term (e.g., dynamic model results), as well as direction provided in the State Water Board Order WQO 2004-0013 to address the technical issues in the Discharger's petition (e.g., mixing zones and dilution credit), this Order: 1) includes revised effluent limitations for some parameters that are less stringent than in Order No. R5-2003-0085 due primarily to the application of dilution credits as authorized under the SIP; 2) includes revised effluent limitations for aluminum that are more stringent than in Order No. R5-2003-0085; 3) does not include effluent limitations for some parameters that do not show reasonable potential in accordance with the SIP; and 4) includes effluent limitations for some parameters that were not previously regulated under

Order No. R5-2003-0085. A summary of which parameters were affected by the reanalysis is provided in Table F-29 of the Fact Sheet.

CSPA Comment #18. Effluent Limitation Averaging Periods. CSPA states that the proposed permit authorizes inappropriate and illegal (40 CFR §122.45) averaging periods for iron, manganese, and methylene blue active substances.

The proposed permit includes the following limitations:

IV.A.1.c: ***“Total Recoverable Iron.*** *For a calendar year, the annual average total recoverable iron concentration in the effluent shall not exceed 300 µg/L.”*

IV.A.1.d: ***“Total Recoverable Manganese.*** *For a calendar year, the annual average total recoverable manganese concentration in the effluent shall not exceed 2,899 µg/L.”*

IV.A.1.e: ***“Methylene Blue Active Substances (MBAS).*** *For a calendar year, the annual average methylene blue active substances concentration in the effluent shall not exceed 100 mg/L.”*

40 CFR §122.45 states that:

“For continuous discharges all permit effluent limitations...shall unless impracticable be stated as...[a]verage weekly and average monthly discharge limitations for POTWs.”

U.S. EPA, in its *Technical Support Document for Water Quality Based Toxics Control* (EPA/505/2-90-001) (TSD) recommends a maximum daily limitation rather than an average weekly limitation for water quality based permitting.

It is not impracticable to state the secondary maximum contaminant levels for iron, manganese, and methylene blue active substances as average monthly discharge limitations and no attempt has been made by the permit writer to assert such a thing. The failure to include average monthly effluent limitations for these constituents is a direct violation of 40 CFR §122.45. The proposed permit must be revised to state the effluent limitations for iron, manganese, and methylene blue active substances as monthly, rather than annual, averages.

RESPONSE: See response to CSPA Comment #10. The proposed revised effluent limits for iron are the same as the previous permit, but the averaging period has been revised to be consistent with state regulations implementing secondary drinking water standards. The mass-based effluent limitation has been deleted consistent with federal regulations. These revisions are consistent with 40 CFR 122.45(f)(1)(ii).

The proposed revised effluent limitation for MBAS is more stringent (100 µg/L) than the effluent limitation contained the previous permit (1,000 µg/L), and the averaging period has been revised to be consistent with state regulations implementing secondary drinking water standards. The mass-based effluent limitation has been deleted consistent with federal regulations. These revisions are consistent with 40 CFR 122.45(f)(1)(ii).

CSPA Comment #19. The proposed Permit fails to contain Effluent Limitations for a significant number of pollutants regulated in the prior Permit contrary to Federal Regulation, 40 CFR 122.4 (a), (d) and (g) and the California Water Code.

California Water Code, section 13377, requires that: “Notwithstanding any other provision of this division, the state board and the regional boards shall, as required or authorized by the Federal Water Pollution Control Act, as amended, issue waste discharge and dredged or fill material permits which apply and ensure compliance with all applicable provisions of the act and acts amendatory thereof or supplementary, thereto, together with any more stringent effluent standards or limitations necessary to implement water quality control plans, or for the protection of beneficial uses, or to prevent nuisance.”

Federal Regulation, 40 CFR 122.4 (a), (d) and (g) require that no permit may be issued when the conditions of the permit do not provide for compliance with the applicable requirements of the CWA, or regulations promulgated under the CWA, when imposition of conditions cannot ensure compliance with applicable water quality requirements and for any discharge inconsistent with a plan or plan amendment approved under Section 208(b) of the CWA.

Order No. R5-2003-0089 found reasonable potential contained effluent limitations for the following constituents that are not limited in the proposed permit:

- | | | |
|--------------------------------|--------------------------|-------------------------|
| • Arsenic | • Cis-1,2-Dichloroethene | • Thiobencarb |
| • Bis (2-ethylhexyl) phthalate | • MTBE | • Trichloroethylene |
| • Cadmium | • Nitrite+Nitrate (as N) | • 2,4,6-Trichlorophenol |
| • Chloroform | • Pentachlorophenol | |

The proposed permit does not present any valid reason why reasonable potential for these constituents does not still exist. The proposed permit must be revised to include effluent limitations for the constituents listed above.

RESPONSE: See responses to CSPA Comment #17 and CSPA Comment #32.

CSPA Comment #20. The Proposed Permit Fails to Include Mass Limitations for Persistent and/or Bioaccumulative or Bioconcentrating Constituents.

The Fact Sheet to Order No. R5-2006-0096, the NPDES permit for the LCWD WWTP,

included the following:

“Oxygen-demanding substances, persistent, bioaccumulative toxics, and constituents with an associated total maximum daily load require mass limitations to protect the beneficial uses of the receiving water. Regional Board staff have included mass limitations for persistent, bioaccumulative, toxics based on the 9 November 1998 Federal Register Notice of Availability of Draft RCRA Waste Minimization PBT Chemical List. This document does not contain a comprehensive list, however, and additional constituents may require mass limitations as information becomes available.”

The Regional Board included in that same Order mass limitations for the following constituents, which it apparently considered to be oxygen-demanding, persistent, and/or bioaccumulative toxics:

- | | | |
|------------------------------------|------------------------------|---------------------------|
| • Ammonia, Total (as N) | • Copper, Total Recoverable | • Mercury, Total |
| • Bis (2-ethylhexyl) phthalate | • Cyanide, Total Recoverable | • Nitrite (as N) |
| • Chlorine | • Diazinon | • Nitrite+Nitrate (as N) |
| • Chloroform | • Dibenzo(a,h)anthracene | • Oil and Grease |
| • Chromium (VI), total recoverable | • Lead, Total Recoverable | • Zinc, Total Recoverable |

The proposed permit found reasonable potential for the following oxygen-demanding, persistent, and/or bioaccumulative constituents, but failed to include mass limitations:

- | | | |
|------------------------------|---------------------------------|---------------------------|
| • Ammonia, Total (as N) | • Dibenzo(a,h)anthracene | • Nitrite (as N) |
| • Chlorine | • Diethyl Phthalate | • Tetrachloroethylene |
| • Copper, Total Recoverable | • Lead, Total Recoverable | • Thallium |
| • Cyanide, Total Recoverable | • Molybdenum, Total Recoverable | • Zinc, Total Recoverable |
| • Diazinon | | |

On petition, the State Board upheld the reasonable potential analyses and the need for effluent limitations in every regard except that of mass limitations from the ponds. While the exact number for the lbs/day loading was questioned by the State Board, the need for those limitations was not. State Board Order WQO 2004-0013 remanded the affected limitations to the Regional Board for reconsideration and vacated them in the interim; it did not order them removed. In effect, the State Board decision left placeholders for the final numbers, which were to be determined on remand. Therefore, the failure to include mass limitations for the constituents listed above constitutes

backsliding and violates the State Board order. The proposed permit must be revised to include mass limitations for the constituents listed above.

Section 5.7.1 of U.S. EPA's *Technical Support Document for Water Quality Based Toxics Control* (TSD, EPA/505/2-90-001) states with regard to mass-based Effluent Limits:

"Mass-based effluent limits are required by NPDES regulations at 40 CFR 122.45(f). The regulation requires that all pollutants limited in NPDES permits have limits, standards, or prohibitions expressed in terms of mass with three exceptions, including one for pollutants that cannot be expressed appropriately by mass. Examples of such pollutants are pH, temperature, radiation, and whole effluent toxicity. Mass limitations in terms of pounds per day or kilograms per day can be calculated for all chemicals specific toxics such as chlorine or chromium.

Mass-based limits should be calculated using concentration limits at critical flows. For example, a permit limit of 10 mg/l of cadmium discharged at an average rate of 1 million gallons per day also would contain a limit of 38 kilograms/day of cadmium. Mass based limits are particularly important for control of bioconcentratable pollutants. Concentration based limits will not adequately control discharges of these pollutants if the effluent concentrations are below detection levels. For these pollutants, controlling mass loadings to the receiving water is critical for preventing adverse environmental impacts.

However, mass-based effluent limits alone may not assure attainment of water quality standards in waters with low dilution. In these waters, the quantity of effluent discharged has a strong effect on the instream dilution and therefore upon the RWC. At the extreme case of a stream that is 100 percent effluent, it is the effluent concentration rather than the mass discharge that dictates the instream concentration. Therefore, EPA recommends that permit limits on both mass and concentration be specified for effluents discharging into waters with less than 100 fold dilution to ensure attainment of water quality standards."

Federal Regulations, 40 CFR 122.45 (f), states the following with regard to mass limitations:

- "(1) all pollutants limited in permits shall have limitations, standards, or prohibitions expressed in terms of mass except:*
- (i) For pH, temperature, radiation or other pollutants which cannot be expressed by mass;*
 - (ii) When applicable standards and limitations are expressed in terms of other units of measurement; or*
 - (iii) If in establishing permit limitations on a case-by-case basis under 125.3, limitations expressed in terms of mass are infeasible because the mass of the pollutant discharged cannot be related to*

a measure of operation (for example, discharges of TSS from certain mining operations), and permit conditions ensure that dilution will not be used as a substitute for treatment.

- (2) *Pollutants limited in terms of mass additionally may be limited in terms of other units of measurement, and the permit shall require the permittee to comply with both limitations.”*

Federal Regulations, 40 CFR 122.45 (B)(1), states the following: “*In the case of POTWs, permit effluent limitations, standards, or prohibitions shall be calculated based on design flow.*” Design flow has no bearing on concentration limits. This failure to include mass limitations is in direct violation of 40 CFR 122.45 (B)(1). Mixing zone allowances will increase the mass loadings of a pollutant to a waterbody and decrease treatment requirements. Accurate mass loadings are critical to mixing zone determinations.

RESPONSE: 40 CFR SEC 122.25(f) states the following:

“Mass limitations. (1) All pollutants limited in permits shall have limitations, standards or prohibitions expressed in terms of mass except:

(i) For pH, temperature, radiation, or other pollutants which cannot appropriately be expressed by mass;

(ii) When applicable standards and limitations are expressed in terms of other units of measurement; or

(iii) If in establishing permit limitations on a case-by-case basis under §125.3, limitations expressed in terms of mass are infeasible because the mass of the pollutant discharged cannot be related to a measure of operation (for example, discharges of TSS from certain mining operations), and permit conditions ensure that dilution will not be used as a substitute for treatment.

(2) Pollutants limited in terms of mass additionally may be limited in terms of other units of measurement, and the permit shall require the permittee to comply with both limitations.”

40 CFR section 122.25(f)(1)(ii) states that mass limitations are not required when applicable standards are expressed in terms of other units of measurement. All pollutants with numerical effluent limitations in the proposed permit are based on water quality standards and objectives. These are expressed in terms of concentration. Pursuant to 40 CFR section 122.25(f)(1)(ii), expressing the effluent limitations in terms of concentration is in accordance with Federal Regulations.

Mass limitations for oxygen-demanding substances, bioaccumulative substances, and constituents with an associated 303(d) listing or total maximum daily load, are included in the proposed permit. The proposed permit includes mass limitations for 1) biochemical oxygen demand and total suspended solids since these are oxygen-demanding substances, and 2) mercury since it is a bioaccumulative constituent and a TMDL is pending. For those pollutant parameters that were stayed as a result of Order WQO 2004-0013, and for which effluent limitations are based on water quality objectives and criteria that are concentration-based, mass-based effluent limitations are not included in this Order. For those pollutant parameters that were not stayed as a result of Order WQO 2004-0013, for which mass-based effluent limitations were included in the previous Order (including iron, manganese, and molybdenum), and for which effluent limitations were necessary, mass-based effluent limitations have not been included in the Order as allowed under 40 CFR section 122.25 (f)(1)(ii).

CSPA Comment #21. Assimilative Capacity for EC already given up with LCWD permit and the proposed Permit allows over allocation of the Feather River contrary to the Basin Plan.

The Basin Plan, page IV-15.00, contains *The Water Quality Limited Segment Policy* which states that: “Additional treatment beyond minimum federal requirements will be imposed on dischargers to water Quality Limited Segments. Dischargers will be assigned or allocated a maximum allowable load of critical pollutants so that water quality objectives can be achieved in the segment.” The proposed permit includes an interim effluent limitation for electrical conductivity of 1,000 mmhos/cm as a monthly average that is to be effective throughout the term of the permit and authorizes a dry weather discharge flow of up to 10.5 mgd. Order No. R5-2003-0089 included a final effluent limitation of 830 mmhos/cm as a 30-day, 90th percentile and authorized a dry weather discharge flow of up to 7.0 mgd. Order No. R5-2006-0096, for the Linda County Water District discharge to the Feather River, included the following discussion regarding allocation of the remaining assimilative capacity for electrical conductivity:

“Electrical Conductivity—*The Basin Plan includes a water quality objective that electrical conductivity (at 25°C) “[s]hall not exceed 150 micromhos/cm (90 percentile) in well-mixed waters of the Feather River.” One of the water bodies to which this objective applies is the Feather River from the Fish Barrier Dam at Oroville to the Sacramento River. Electrical conductivity in the discharge has a reasonable potential to cause or contribute to an in-stream excursion above the Basin Plan objective for electrical conductivity in the Feather River. An Effluent Limitation for electrical conductivity is included in this Order and is based on the Basin Plan objective for electrical conductivity in the Feather River and consideration of available assimilative capacity.*

The maximum 30-day 90th percentile effluent and receiving water (R-1) electrical conductivity concentrations for the period beginning 1 January 2001 and ending 31 August 2005 were 777 µmhos/cm and 146 µmhos/cm, respectively. The

human health dilution ratio (described in WQBEL Calculations IV.C.4.d on page 63) is appropriate to use because it applies to criteria that are applicable over longer time periods than the toxicity dilution ratios.

Yuba City's WWTP discharge consumes a portion of the EC dilution available in the Feather River. WDRs Order No. R5-2003-0085 permits Yuba City's WWTP to discharge up to 7.0 mgd of effluent with a maximum allowable EC concentration of 830 $\mu\text{mhos/cm}$ to the Feather River. Using a mass balance, the 90th percentile EC of the Feather River would be 149.42 $\mu\text{mhos/cm}$.

$$\text{EC} = ((\text{ECLindaQLinda}) + (\text{ECYuba CityQYuba City}) + (\text{ECFeather RiverQFeather River})) / (\text{QLinda} + \text{QYuba} + \text{QFeather})$$
$$149.42 \text{ } \mu\text{mhos/cm} = ((780 \text{ } \mu\text{mhos/cm} \times 5.0 \text{ mgd}) + (830 \text{ } \mu\text{mhos/cm} \times 7.0 \text{ mgd}) + (146 \text{ } \mu\text{mhos/cm} \times 2318 \text{ mgd})) / (5.0 \text{ mgd} + 7.0 \text{ mgd} + 2318 \text{ mgd})$$

This Order includes a maximum 30-day 90th percentile Effluent Limitation for electrical conductivity of 780 $\mu\text{mhos/cm}$ that is based upon the WWTP's 30-day 90th percentile effluent electrical conductivity concentration.

This Order grants the remainder of the EC assimilative capacity of the Feather River to this discharge. Redistribution of EC allocation for discharges to the Feather River may be considered when this Order is renewed or reopened."
[emphasis added]

If one discharge of 5.0 mgd at 780 $\mu\text{mhos/cm}$ plus another discharge of 7.0 mgd at 830 $\mu\text{mhos/cm}$ means the full utilization of the Feather River's assimilative capacity for electrical conductivity, then clearly one discharge of 5.0 mgd at 780 $\mu\text{mhos/cm}$ plus another discharge of 10.5 mgd at 1,000 $\mu\text{mhos/cm}$ would result in over-allocation of the Feather River's assimilative capacity for electrical conductivity. The proposed permit includes an interim effluent limitation for electrical conductivity of 1,000 $\mu\text{mhos/cm}$ as a monthly average that is to be effective throughout the term of the permit and authorizes a dry weather discharge flow of up to 10.5 mgd. Order No. R5-2003-0089 included a final effluent limitation of 830 $\mu\text{mhos/cm}$ as a 30-day, 90th percentile and authorized a dry weather discharge flow of up to 7.0 mgd.

RESPONSE: See responses to CSPA Comment #2, CSPA Comment #10, and CSPA Comment #22.

CSPA Comment #22. The Proposed Permit Contains an Indefensibly Long Compliance Period for the Feather River Electrical Conductivity Objective.

The Fact Sheet to the proposed permit (p. F-46), states: "The Basin Plan includes a water quality objective that electrical conductivity (at 25°C) "[s]hall not exceed 150 micromhos/cm (90 percentile) in well-mixed waters of the Feather River". The Basin Plan objective for EC is applied as a 10-year rolling average." We were unable to locate

any reference in the Basin Plan to a 10-year rolling average being applied to this objective. In the absence of any Basin-Plan provided period over which to take the 90th percentile, we suggest that a rolling, 30-day, 90th percentile would most closely approximate the requirement for average monthly effluent limitations in permits for POTWs. In addition, a 10-year average means that compliance cannot be assessed, nor noncompliance enforced, at any point within the life of the permit. The proposed permit must be revised to include an appropriate period over which to take the 90th percentile for the purpose of assessing compliance with the Basin Plan electrical conductivity objective for the Feather River.

State Board's Order WQO 2004-0013 found (p.17) the following:

"The Regional Board included the appropriate findings to show the need for an effluent limitation for EC and appropriately referred to the water quality objectives in its Basin Plan. It states that the numbers used to calculate the effluent limitations are based on electrical conductivity data from 1998 until 2003. The findings or Fact Sheet should cite the specific data on which it relied in its calculations."

The State Board order upheld the 30-day, 90th percentile electrical conductivity limitation. Failure to include a limitation equal to, or more stringent than, the limit included in R5-2003-0089 constitutes backsliding. The proposed permit must be revised accordingly.

RESPONSE: See response to CSPA Comment #10. The previous permit stated: "The 30-day 90th percentile effluent electrical conductivity shall not exceed 830 µmhos/cm." The proposed revised permit contains an interim limit that states: "During the period beginning with the Permit Effective Date and throughout the effective term of this Order, the monthly average electrical conductivity (EC) of effluent discharged from Discharge Point No. 001 shall not exceed 1000 µmhos/cm." The proposed revised permit also states: "The Basin Plan includes a water quality objective that electrical conductivity (at 25°C) '[s]hall not exceed 150 micromhos/cm (90 percentile) in well-mixed waters of the Feather River'. The Basin Plan objective for EC is applied as a 10-year rolling average."

The federal regulations at 40 CFR section 122.44(l)(2)(i)(B)(1) allow a relaxation of an effluent limit where new information that was not available at the time of permit issuance justifies a less stringent limit. New data is available with respect to EC and the discharger's performance. The highest calculated 30-day 90th percentile of the discharge from 1 July 2003 – 30 June 2006 was 949 µmhos/cm. The highest reported daily discharge from 1 July 2003 – 30 June 2006 was 1,000 µmhos/cm. Revising the effluent limit from 830 µmhos/cm as a 90th percentile based on 30-days to 1000 µmhos/cm as a monthly average is justified based on 40 CFR section 122.44(l)(2)(i)(B)(1), but changing it to an interim limit is not

justified based on 40 CFR section 122.44(d) or 122.44(l). The proposed permit limit for EC of 1000 umhos/cm on a monthly average is approximately the same as the existing limitation of 830 umhos/cm as a 90th percentile over 30-days and, therefore, will not result in backsliding from the current limit.

Clean Water Act section 303(d)(4) also allows relaxation of effluent limits where the receiving water is in attainment with the standard and as long as the revised limit is in compliance with the anti-degradation policy. The addition of the 10-year averaging period for interpretation of the Basin Plan objective may be justified under section 303(d)(4). When the Basin Plan was last revised, the averaging period for EC for the Feather River was inadvertently not included in the revision. The EC limits for the Sacramento River did include the 10 year averaging period.

Based on an evaluation of a monthly average discharge from Yuba City of up to 1000 µmhos/cm, this proposed effluent limitation is considered protective of the receiving water downstream of the discharge into the Feather River. Using a mass balance under the following conservative assumptions:

- Yuba City consistently discharges at 1,000 umhos/cm at 10.5 mgd;
- Linda County consistently discharges at 780 umhos/cm at 5.0 mgd;
- The estimate for the 10-year 90th percentile EC upstream of Yuba City is 110 umhos/cm (based on the 90th percentile calculated from data from 2 January 1998 through June 28, 2006); and
- The critical low flow upstream of Yuba City discharge is 2,327 mgd (representing the harmonic mean as it applies to criteria that are applicable over longer time periods).

The 10 year 90th percentile EC of the Feather River is estimated as follows:

$$EC = ((EC_{Linda} * Q_{Linda}) + (EC_{Yuba\ City} * Q_{Yuba\ City}) + (EC_{Feather\ River} * Q_{Feather\ River})) / (Q_{Linda} + Q_{Yuba} + Q_{Feather})$$

$$115\ \mu\text{mhos/cm} = ((780\ \mu\text{mhos/cm} \times 5.0\ \text{mgd}) + (1,000\ \mu\text{mhos/cm} \times 10.5\ \text{mgd}) + (110\ \mu\text{mhos/cm} \times 2,327\ \text{mgd})) / (5.0\ \text{mgd} + 10.5\ \text{mgd} + 2,327\ \text{mgd})$$

The estimated 10 year 90th percentile EC of the Feather River is estimated to be approximately 115 µmhos/cm, which is lower than the 150 µmhos/cm water quality objective.

To be consistent with the anti-backsliding requirements, the permit now contains the following final effluent limit for EC: “The monthly average effluent electrical conductivity shall not exceed 1000 µmhos/cm.” The proposed permit limit for EC of 1000 umhos/cm on a monthly average is approximately the same as the existing limitation of 830 umhos/cm as a 90th percentile over 30-days and,

therefore, will not result in backsliding from the current limit. In addition, the permit includes a receiving water limit for EC that states: "The discharge cannot cause or contribute to the Feather River downstream of the discharge to exceeding an EC concentration of 150 μ mhos/cm as a 90th percentile based on a running 10 year average."

CSPA Comment #23. Electrical Conductivity

Federal Regulations, 40 CFR 122.44 (d)(i), requires that; "Limitations must control all pollutants or pollutant parameters (either conventional, nonconventional, or toxic pollutants) which the Director determines are or may be discharged at a level which will cause, have the reasonable potential to cause, or contribute to an excursion above any State water quality standard, including State narrative criteria for water quality."

Failure to establish effluent limitations for EC that are protective of the site-specific Basin Plan water quality objective for electrical conductivity in the Feather River blatantly violates 40 CFR 122.44.

Federal Regulation, 40 CFR 122.44, which mandates an effluent limitation be established if a discharge exceeds a water quality objective. State Board Water Quality Order 2005-005 states, in part that: "...the State Board takes official notice [pursuant to Title 23 of California Code of Regulations, Section 648.2] of the fact that operation of a large-scale reverse osmosis treatment plant would result in production of highly saline brine for which an acceptable method of disposal would have to be developed. Consequently, any decision that would require use of reverse osmosis to treat the City's municipal wastewater effluent on a large scale should involve thorough consideration of the expected environmental effects." The State Board does not have the authority to ignore Federal Regulation. Bay Area treatment plants have been utilized for RO brine disposal previously.

RESPONSE: See response to CSPA Comment #22. The proposed permit has been revised to make the limitation for EC a final limitation, not an interim limitation and includes a receiving water limit to assure that the discharge does not cause the receiving water to exceed the 10-year 90th percentile EC of 150 μ mhos/cm.

CSPA Comment #24. The proposed Permit contains an incomplete Antidegradation analysis contrary to Federal Regulations and the State and Regional Board's Antidegradation Policy.

Despite the extensive expansion allowed by the proposed Permit, the antidegradation analysis discussion in the proposed permit is not simply deficient, it is literally nonexistent. The brief discussion of antidegradation requirements, in the Findings and Fact Sheet, consist only of skeletal, unsupported, undocumented conclusory statements

totally lacking in factual analysis. The failure to undertake a rigorous antidegradation analysis for the expansion of a “major” discharge of pollutants into a critical and legally impaired water body is appalling.

The permit states that the action to adopt an NPDES permit is exempt from the provisions of Chapter 3 of Division 13 of the Public Resources Code in accordance with Section 13389 of the CWC. The action to adopt an NPDES permit may be exempt from CEQA; however the proposed permit discusses significant expansion of the wastewater treatment plant which is not exempt from CEQA. Later in the Fact Sheet, the permit discusses a CEQA document that was completed for the wastewater treatment plant expansion. The CEQA discussion within the permit must be expanded to discuss all of the water quality impacts discovered during the CEQA analysis. The permit states Discharger HAS proposed mitigation measures in their EIR, yet no such mitigation measures are identified or discussed in the permit. Intensive sampling for four-years is not mitigation. While it is true that the Regional Board is exempt from Chapter 3 of CEQA, it is not exempt from all of CEQA. The CEQA discussion of water quality issues is relevant to the antidegradation policy discussion.

As a part of the Antidegradation Policy, Dischargers are required to provide BPTC. The Antidegradation Policy, State Water Resources Control Board Resolution No. 68-16, states that: “Any activity which produces or may produce a waste or increased volume or concentration of waste and which discharges or proposes to discharge to existing high quality waters will be required to meet waste discharge requirements which will result in the best practicable treatment or control of the discharge necessary to assure that (a) a pollution or nuisance will not occur and (b) the highest water quality consistent with the maximum benefit to the people of the State will be maintained.” The Antidegradation Policy has been incorporated into the Basin Plan. Waste Discharge Requirements must require that the treatments systems provide BPTC. It is not in the best interest of the people of the State to allow a mixing zone that is toxic to aquatic life, that does not protect the contact recreation beneficial use for fishermen in the mixing zone and allows Yuba City to provide antiquated wastewater treatment. Yuba City’s system produces secondary unnitrified wastewater, while tertiary treatment has become common place in the Central Valley to protect water quality.

Section 101(a) of the Clean Water Act, the basis for the antidegradation policy, states that the objective of the Act is to “restore and maintain the chemical, biological and physical integrity of the nation’s waters.” Section 303(d)(4) of the Act carries this further, referring explicitly to the need for states to satisfy the antidegradation regulations at 40 CFR § 131.12 before taking action to lower water quality. These regulations describe the federal antidegradation policy and dictate that states must adopt both a policy at least as stringent as the federal policy as well as implementing procedures. (40 CFR § 131.12(a).)

California’s antidegradation policy is composed of both the federal antidegradation policy and the State Board’s Resolution 68-16. (State Water Resources Control Board,

Water Quality Order 86-17, p. 20 (1986) ("Order 86-17"); Memorandum from William Attwater, SWRCB to Regional Board Executive Officers, "federal Antidegradation Policy," pp. 2, 18 (Oct. 7, 1987) ("State Antidegradation Guidance").) As part of the state policy for water quality control, the antidegradation policy is binding on all of the Regional Boards. (Water Quality Order 86-17, pp. 17-18.) Implementation of the state's antidegradation policy is guided by the State Antidegradation Guidance, SWRCB Administrative Procedures Update 90-004, 2 July 1990 ("APU 90-004") and USEPA Region IX, "Guidance on Implementing the Antidegradation Provisions of 40 CFR 131.12" (3 June 1987) ("Region IX Guidance"), as well as Water Quality Order 86-17.

The Regional Board must apply the antidegradation policy whenever it takes an action that will lower water quality. (State Antidegradation Guidance, pp. 3, 5, 18, and Region IX Guidance, p. 1.) Application of the policy does not depend on whether the action will actually impair beneficial uses. (State Antidegradation Guidance, p. 6. Actions that trigger use of the antidegradation policy include issuance, re-issuance, and modification of NPDES and Section 404 permits and waste discharge requirements, waiver of waste discharge requirements, issuance of variances, relocation of discharges, issuance of cleanup and abatement orders, increases in discharges due to industrial production and/or municipal growth and/or other sources, exceptions from otherwise applicable water quality objectives, etc. (State Antidegradation Guidance, pp. 7-10, Region IX Guidance, pp. 2-3.) Both the state and federal policies apply to point and nonpoint source pollution. (State Antidegradation Guidance p. 6, Region IX Guidance, p. 4.)

The federal antidegradation regulations delineate three tiers of protection for waterbodies. Tier 1, described in 40 CFR § 131.12(a)(1), is the floor for protection of all waters of the United States. (48 Fed. Reg. 51400, 51403 (8 Nov. 1983); Region IX Guidance, pp. 1-2; APU 90-004, pp. 11-12.) It states that "[e]xisting instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected." Uses are "existing" if they were actually attained in the water body on or after November 28, 1975, or if the water quality is suitable to allow the use to occur, regardless of whether the use was actually designated. (40 CFR § 131.3(e).) Tier 1 protections apply even to those waters already impacted by pollution and identified as impaired. In other words, already impaired waters cannot be further impaired.

Tier 2 waters are provided additional protections against unnecessary degradation in places where the levels of water quality are better than necessary to support existing uses. Tier 2 protections strictly prohibit degradation unless the state finds that a degrading activity is: 1) necessary to accommodate important economic or social development in the area, 2) water quality is adequate to protect and maintain existing beneficial uses, and 3) the highest statutory and regulatory requirements and best management practices for pollution control are achieved. (40 CFR § 131.12(a)(2).) Cost savings to a discharger alone, absent a demonstration by the project proponent as to how these savings are "necessary to accommodate important economic or social development in the area," are not adequate justification for allowing reductions in water quality. (Water Quality Order 86-17, p. 22; State Antidegradation Guidance, p. 13.) If the

waterbody passes this test and the degradation is allowed, degradation must not impair existing uses of the waterbody. (48 Fed. Reg. at 51403). Virtually all waterbodies in California may be Tier 2 waters since the state, like most states, applies the antidegradation policy on a parameter-by-parameter basis, rather than on a waterbody basis. (APU 90-004, p. 4). Consequently, a request to discharge a particular chemical to a river, whose level of that chemical was better than the state standards, would trigger a Tier 2 antidegradation review even if the river was already impaired by other chemicals.

Tier 3 of the federal antidegradation policy states “[w]here high quality waters constitute an outstanding national resource, such as waters of national and State parks and wildlife refuges and waters of exceptional recreational or ecological significance, that water shall be maintained and protected. (40 CFR § 131.12(a)(3).) These Outstanding National Resource Waters (ONRW) are designated either because of their high quality or because they are important for another reason. (48 Fed. Reg. At 51403; State Antidegradation Guidance, p. 15). No degradation of water quality is allowed in these waters other than short-term, temporary changes. (Id.) Accordingly, no new or increased discharges are allowed in either ONRW or tributaries to ONRW that would result in lower water quality in the ONRW. (EPA Handbook, p. 4-10; State Antidegradation Guidance, p. 15.) Existing antidegradation policy already dictates that if a waterbody “should be” an ONRW, or “if it can be argued that the waterbody in question deserves the same treatment {as a formally designated ONRW},” then it must be treated as such, regardless of formal designation. (State Antidegradation Guidance, pp. 15-16; APU 90-004, p. 4.) Thus the Regional Board is required in each antidegradation analysis to consider whether the waterbody at issue should be treated as an ONRW. It should be reiterated that waters cannot be excluded from consideration as an ONRW simply because they are already “impaired” by some constituents. By definition, waters may be “outstanding” not only because of pristine quality, but also because of recreational significance, ecological significance or other reasons. (40 CFR §131.12(a)(3).) Waters need not be “high quality” for every parameter to be an ONRW. (APU 90-004, p. 4) For example, Lake Tahoe is on the 303(d) list due to sediments/siltation and nutrients, and Mono Lake is listed for salinity/TDC/chlorides but both are listed as ONRW.

The State Board’s APU 90-004 specifies guidance to the Regional Boards for implementing the state and federal antidegradation policies and guidance. The guidance establishes a two-tiered process for addressing these policies and sets forth two levels of analysis: a simple analysis and a complete analysis. A simple analysis may be employed where a Regional Board determines that: 1) a reduction in water quality will be spatially localized or limited with respect to the waterbody, e.g. confined to the mixing zone; 2) a reduction in water quality is temporally limited; 3) a proposed action will produce minor effects which will not result in a significant reduction of water quality; and 4) a proposed activity has been approved in a General Plan and has been adequately subjected to the environmental and economic analysis required in an EIR. A complete antidegradation analysis is required if discharges would result in: 1) a substantial increase in mass emissions of a constituent; or 2) significant mortality, growth impairment, or reproductive impairment of resident species. Regional Boards are

advised to apply stricter scrutiny to non-threshold constituents, i.e., carcinogens and other constituents that are deemed to present a risk of source magnitude at all non-zero concentrations. If a Regional Board cannot find that the above determinations can be reached, a complete analysis is required.

Even a minimal antidegradation analysis would require an examination of: 1) existing applicable water quality standards; 2) ambient conditions in receiving waters compared to standards; 3) incremental changes in constituent loading, both concentration and mass; 4) treatability; 5) best practicable treatment and control (BPTC); 6) comparison of the proposed increased loadings relative to other sources; 7) an assessment of the significance of changes in ambient water quality and 8) whether the waterbody was a ONRW. A minimal antidegradation analysis must also analyze whether: 1) such degradation is consistent with the maximum benefit to the people of the state; 2) the activity is necessary to accommodate important economic or social development in the area; 3) the highest statutory and regulatory requirements and best management practices for pollution control are achieved; and 4) resulting water quality is adequate to protect and maintain existing beneficial uses.

Any antidegradation analysis must comport with implementation requirements in State Board Water Quality Order 86-17, State Antidegradation Guidance, APU 90-004 and Region IX Guidance. The conclusory, unsupported, undocumented statements in the Permit are no substitute for a defensible antidegradation analysis.

The antidegradation review process is especially important in the context of waters protected by Tier 2. See EPA, Office of Water Quality Regulations and Standards, Water Quality Standards Handbook, 2nd ed. Chapter 4 (2nd ed. Aug. 1994). Whenever a person proposes an activity that may degrade a water protected by Tier 2, the antidegradation regulation requires a state to: (1) determine whether the degradation is “necessary to accommodate important economic or social development in the area in which the waters are located”; (2) consider less-degrading alternatives; (3) ensure that the best available pollution control measures are used to limit degradation; and (4) guarantee that, if water quality is lowered, existing uses will be fully protected. 40 CFR § 131.12(a)(2); EPA, Office of Water Quality Regulations and Standards, Water Quality Standards Handbook, 2nd ed. 4-1, 4-7 (2nd ed. Aug. 1994). These activity-specific determinations necessarily require that each activity be considered individually.

For example, the APU 90-004 states:

“Factors that should be considered when determining whether the discharge is necessary to accommodate social or economic development and is consistent with maximum public benefit include: a) past, present, and probably beneficial uses of the water, b) economic and social costs, tangible and intangible, of the proposed discharge compared to benefits. The economic impacts to be considered are those incurred in order to maintain existing water quality. The financial impact analysis should focus on the ability of the facility to pay for the

necessary treatment. The ability to pay depends on the facility's source of funds. In addition to demonstrating a financial impact on the publicly – or privately – owned facility, the analysis must show a significant adverse impact on the community. The long-term and short-term socioeconomic impacts of maintaining existing water quality must be considered. Examples of social and economic parameters that could be affected are employment, housing, community services, income, tax revenues and land value. To accurately assess the impact of the proposed project, the projected baseline socioeconomic profile of the affected community without the project should be compared to the projected profile with the project...EPA's Water Quality Standards Handbook (Chapter 5) provides additional guidance in assessing financial and socioeconomic impacts"

The antidegradation analysis does not discuss the economic impacts to neighboring communities by granting all of the assimilative capacity of the Feather River to Yuba City.

There is nothing resembling an economic or socioeconomic analysis in the Permit. There are viable alternatives that have never been analyzed. The Discharger could upgrade to a conventional tertiary, nitrification, denitrification, ultraviolet disinfection system or install micro-filtration treatment equipment. The evaluation contains no comparative costs. As a rule-of-thumb, U.S. EPA recommends that the cost of compliance should not be considered excessive until it consumes more than 2% of disposable household income in the region. This threshold is meant to suggest more of a floor than a ceiling when evaluating economic impact. In the *Water Quality Standards Handbook*, U.S. EPA interprets the phrase "necessary to accommodate important economic or social development" with the phrase "substantial and widespread economic and social impact."

The antidegradation analysis must discuss the relative economic burden as an aggregate impact across the entire region using macroeconomics. Considering the intrinsic value of the Feather River to the region and the potential effects upon those who rely on and use the Feather and Sacramento Rivers, as well as Delta waters, it must also evaluate the economic and social impacts to water supply, recreation, fisheries, etc. from the Discharger's degradation of water quality in the receiving streams. Nor has the case been made that there is no alternative for necessary housing other than placing it where its wastewater must discharge directly into sensitive waters. It is unfortunate that the agency charged with implementing the Clean Water Act has apparently decided it is more important to protect the polluter than the environment.

There is nothing in the proposed permit resembling an alternatives analysis evaluating less damaging and degrading alternatives. Unfortunately, the proposed permit fails to evaluate and discuss why there is no alternative other than discharging to surface waters. Other communities have successfully disposed of wastes without discharging additional pollutants to degraded rivers. The discharger certainly has the option of

purchasing offsets. A proper alternatives analysis would cost out various alternatives and compare each of the alternatives' impacts on beneficial uses.

There is nothing resembling an analysis buttressing the unsupported claim that BPTC is achieved. An increasing number of wastewater treatment plants around the country and state are employing reverse-osmosis (RO), or even RO-plus. Clearly, micro-filtration can be considered BPTC for wastewater discharges of impairing pollutants into critically sensitive ecological areas containing listed species that are already suffering degradation. If this is not the case, the antidegradation analysis must explicitly detail how and why an out-of-date secondary treatment system that facilitate increased mass loadings of impairing constituents can be considered BPTC.

There is nothing in the proposed permit resembling an analysis that ensures that existing beneficial uses are protected. While the proposed permit identifies the constituents that are included on the 303(d) list as impairing receiving waters, it fails to discuss how and to what degree the identified beneficial uses will be additionally impacted by the discharge. Nor does the proposed permit analyze the incremental and cumulative impact of increased loading of non-impairing pollutants on beneficial uses. In fact, there is almost no information or discussion on the composition and health of the identified beneficial uses. Any reasonably adequate antidegradation analysis must discuss the affected beneficial uses (*i.e.*, numbers and health of the aquatic ecosystem; extent, composition and viability of agricultural production; people depending upon these waters for water supply; extent of recreational activity; *etc.*) and the probable effect the discharge will have on these uses.

Alternatively, Tier 1 requires that existing instream water uses and the level of water quality necessary to protect the existing uses shall be maintained and protected. By definition, any increase in the discharge of impairing pollutants to impaired waterways unreasonably degrades beneficial uses and exceeds applicable water quality standards. Prohibition of additional mass loading of impairing pollutants is a necessary stabilization precursor to any successful effort in bringing an impaired waterbody into compliance.

The State Board has clearly articulated its position on increased mass loading of impairing pollutants. In Order WQ 90-05, the State Board directed the San Francisco Regional Board on the appropriate method for establishing mass-based limits that comply with state and federal antidegradation policies. That 1990 order stated “[i]n order to comply with the federal antidegradation policy, the mass loading limits should also be revised, based on mean loading, concurrently with the adoption of revised effluent limits. The [mass] limits should be calculated by multiplying the [previous year’s] annual mean effluent concentration by the [four previous year’s] annual average flow. (Order WQ 90- 05, p. 78). USEPA points out, in its 12 November 1999 objection letter to the San Francisco Regional Board concerning Tosco’s Avon refinery, that ‘[a]ny increase in loading of a pollutant to a water body that is impaired because of that pollutant would presumably degrade water quality in violation of the applicable antidegradation policy.’”

NPDES permits must include any more stringent effluent limitation necessary to implement the Regional Board Basin Plan (Water Code 13377). The proposed permit fails to properly implement the Basin Plan's Antidegradation Policy.

RESPONSE: Regional Water Board staff agrees that the summary discussion contained in the Fact Sheet needs to be expanded to better describe the antidegradation analysis provided by the Discharger. The Fact Sheet has been revised in the proposed Order.

The Discharger prepared an antidegradation analysis, as described in the 15 August 2007 "Antidegradation Analysis for Proposed Wastewater Treatment Facility Discharge Modification" report.

As described in the Discharger's report, an analysis was provided that addresses potential degradation of the receiving water (in terms of loss of designated beneficial use or uses) due to the proposed increase in regulated discharge to the Feather River. Particularly the water quality impacts assessment evaluates the effects of increasing the Discharger's wastewater treatment facility's permitted discharge capacity, from 7 MGD to 10.5 MGD, on Feather River water quality downstream of the discharge. Water quality conditions were compared to existing water quality objectives and recommended criteria when applicable. Water quality conditions were estimated at the end of the zone of initial dilution (ZID) and lip of the falls (LOF) for constituents with acute and chronic aquatic criteria, respectively. Water quality conditions were estimated downstream of the diffuser, at a distance of two river lengths, for constituents with non-aquatic life criteria. In both cases, upstream and effluent average concentrations are mixed at the respective critical dilutions to assessing long-term, chronic conditions in the river. Of the 15 constituents considered in the analysis, one constituent concentration (aluminum) will potentially decrease in the Feather River and one constituent concentration (iron) will be unaffected. Seven constituent concentrations (dissolved copper, total zinc, EC, dissolved manganese, mercury, methyl mercury, and molybdenum) will potentially increase in the Feather River, downstream of the discharge, by less than 2.5 percent on average (annual) with increased discharge. The other six constituents considered (ammonia, cadmium, dichlorobromomethane, MBAS, nitrite, and tetrachloroethylene) do not have sufficient ambient data to estimate the potential percent changes in loading. However, the Discharger expected that given sufficient data and assuming that these constituents are present to some degree in the Feather River, an analysis of these constituents would produce similar results to those documented in this report. Therefore, the increase in discharge is not expected to adversely affect any designated potential or existing beneficial uses of the Feather River.

The Discharger's evaluated two primary options to off-set an allowed increase in discharge: reclamation of the wastewater and treatment. Five different reclamation alternatives were presented, based on the regional Recycled Water

Facilities Master Plan that addressed the needs of the City of Marysville, the Linda County Water District, and the City of Yuba City. The alternatives and associated estimated project costs and annual operation and maintenance costs to the Discharger to implement the alternatives are summarized below:

1. Facility improvements to disinfected tertiary treatment – landscape and agricultural irrigation (\$516.2 million; \$8.3 million/year)
2. Facility improvements to disinfected tertiary treatment – agricultural irrigation only (\$471.4 million; \$5.8 million/year)
3. Yuba City Wastewater Treatment Facility and Marysville Wastewater Treatment Facility effluent to Linda County Water District Wastewater Treatment Facility with Linda County Water District Wastewater Treatment Facility improvements to disinfected tertiary treatment – landscape and agricultural irrigation (\$489.7 million; \$7.2 million/year)
4. Linda County Water District and Marysville Wastewater Treatment Facility effluent to Yuba City Wastewater Treatment Facility with Yuba City Wastewater Treatment Facility improvements to disinfected tertiary treatment – landscape and agricultural irrigation (\$491.9 million; \$7.4 million/year)
5. Marysville Wastewater Treatment Facility effluent to Linda County Water District Wastewater Treatment Facility with Linda County Water District Wastewater Treatment Facility improvements to disinfected tertiary treatment – Yuba City Wastewater Treatment Facility treatment upgrade and shared distribution piping between the Linda County Water District and Yuba City Wastewater Treatment Facilities – landscape and agricultural irrigation (\$495.5 million; \$6.6 million/year)

Based on Region-wide benefit considerations, alternative number 5 above was used as the preferred project for further analysis.

The advanced treatment options evaluated by the Discharger included biological nutrient removal, granulated activated carbon, and microfiltration/reverse osmosis (MF/RO). Based on the pollutants that would need to be removed, the MF/RO alternative was selected for further analysis. For the MF/RO alternative, the associated estimated project costs were \$21.7 million and the annual operation and maintenance costs were estimated to be \$2.06 million.

The socioeconomic impacts to the Discharger were evaluated in two ways; the impact of individual households due to sewer fee increases, and the impact on the community based. The following summarizes the estimated impact to sewer fees.

Option	Monthly Residential Fee	Annual Residential Fee	% Increase in Treatment Cost above Current Level
Current Treatment	\$23.88	\$286.56	--
Reclamation			
Existing Ratepayers	\$24.66	\$295.92	3.3
Future Ratepayers	\$45.62	\$547.44	91
MF/RO			
Existing Ratepayers	\$27.88*	\$334.56*	17
Future Ratepayers	\$36.41*	\$436.92*	52

* Does not include costs for brine disposal.

The Discharger also estimated the community impacts to the City of Yuba City using the economic impact model IMPLN (Impact Analysis for PLANning). Their analysis was based on the assumption that sewer fee increases to households in the City of Yuba City will reduce discretionary spending (disposable income). The loss of discretionary spending will reduce demand for local goods and services, which in turn will reduce demand for local labor, resulting in increased unemployment. Results of the model indicated that the low and middle income households would contribute the most towards financing either option (consuming more than 2 percent of disposable personal income). The economic impact projected is summarized below:

Option	Economic Indicators per Year			
	Labor Income Loss	Indirect Business Tax Loss	Employment Loss	Total Output Loss
Reclamation	\$948,772	\$213,238	32	\$4,440,197
MF/RO	\$834,919	\$187,649	28	\$3,907,374

It should be noted that according to data from 2003 through 2006, the unemployment rates in Yuba and Sutter Counties are almost double the average unemployment rate for California. Based on the water quality analysis results, the costs associated with reclamation or advanced treatment are unduly high compared to the benefits that would be gained by offsetting the potential incremental changes in water quality, which are incidental. If the Regional Water Board grants the increase in discharge but requires measures to offset water quality impacts, the Discharger will need to consider reclaiming or subject the incremental increase in the discharge to advanced treatment. An assessment of potential for reclaimed water results in considerable capital outlay for treatment and conveyance of the produced water. Advanced treatment is expensive, energy intensive and creates brine for which there are currently no readily available methods of disposal. Thus, advanced treatment would significantly

impact the City's employment rate and the City's economic rating. The following provides a comparison of the socio-economic impacts and environmental benefits and impacts of the evaluated options.

Alternative Control Measure	Environmental Benefits	Socio-Economic Costs	Concerns
Reclamation	Addresses all incremental changes in water quality.	\$21.74 increase in monthly sewer service fee. Increase in unemployment (32 jobs)	Demand for reclaimed water may not be year-round. Impact local and regional economies. High cost.
MF/RO *	Addresses all incremental changes in water quality.	\$12.53 increase in monthly sewer service fee. Increase in unemployment (28 jobs)	Impact local and regional economies. High cost. Creation of hazardous waste. High energy demands.

* Does not include ultimate brine disposal.

If adopted, the permit will authorize an expansion of the wastewater treatment facility, which may result in slight degradation of water quality. State and federal antidegradation policies, where applicable, do not prohibit any change in water quality, but requires that changes be justified. The proposed permit protects existing in-stream uses by requiring compliance with applicable federal technology-based standards and with effluent limitations for constituents having the reasonable potential to cause or contribute to an exceedance of water quality standards. The Order limits the discharge of CTR and non-CTR constituents, including aluminum, and does not allow the increased discharge of mercury or salinity despite expansion of the facility.

CSPA Comment #25. The Proposed Permit Contains an Effluent Limitation for Acute Toxicity that Allows Mortality that Exceeds the Basin Plan Water Quality Objective and Does Not Comply with Federal Regulations, at 40 CFR 122.44 (d)(1)(i).

Federal regulations, at 40 CFR 122.44 (d)(1)(i), require that limitations must control all pollutants or pollutant parameters which the Director determines are or may be discharged at a level which will cause, or contribute to an excursion above any State

water quality standard, including State narrative criteria for water quality. The Water Quality Control Plan for the Sacramento/ San Joaquin River Basins (Basin Plan), Water Quality Objectives (Page III-8.00) for Toxicity is a narrative criterion which states that all waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. This section of the Basin Plan further states, in part that, compliance with this objective will be determined by analysis of indicator organisms.

The proposed permit requires that the Discharger conduct acute toxicity tests and states that compliance with the toxicity objective will be determined by analysis of indicator organisms. However, the proposed permit contains a discharge limitation that allows 30% mortality (70% survival) of fish species in any given toxicity test. Accordingly, the proposed Permit must be revised to prohibit acute toxicity in accordance with Federal regulations, at 40 CFR 122.44 (d)(1)(i).

RESPONSE: The proposed permit contains several mechanisms to ensure that effluent discharge does not cause acute or chronic toxicity in the receiving water. Receiving water limitations prohibit the discharge from causing toxicity in the receiving water. For effluent limitations based on the protection of the aquatic life beneficial use, the proposed permit includes effluent limits developed with an appropriate dilution credit and aquatic life toxicity criteria. Additionally, whole effluent chronic toxicity testing is required to identify both acute and chronic cumulative effluent toxicity. If this testing shows that the discharge causes, has the reasonable potential to cause, or contributes to an in stream excursion of the water quality objective for toxicity, the permit requires the Discharger to investigate the causes of, and identify corrective actions to eliminate the toxicity.

The acute whole effluent toxicity limitations establish additional thresholds to control acute toxicity in the effluent: survival in one test no less than 70% and a median of no less than 90% survival in three consecutive tests. Some in-test mortality can occur by chance. To account for this, the acute toxicity test acceptability criteria allow 10 percent mortality (requires 90% survival) in the control. Thus, the acute toxicity limitations allow for some test variability, but impose ceilings for exceptional events (i.e., 30% mortality or more), and for repeat events (i.e., median of three events exceeding mortality of 10%). These effluent limitations are consistent with USEPA guidance document titled "Guidance for NPDES Permit Issuance", dated February 1994, which states the following:

"In the absence of specific numeric water quality objectives for acute and chronic toxicity, the narrative criterion 'no toxics in toxic amounts' applies. Achievement of the narrative criterion, as applied herein, means that ambient waters shall not demonstrate for acute toxicity: 1) less than 90% survival, 50% of the time, based on the monthly median, or 2) less than 70% survival, 10% of the time, based on

any monthly median. For chronic toxicity, ambient waters shall not demonstrate a test result of greater than 1 TUc."

The proposed permit protects aquatic life beneficial uses by implementing numerous measures to control individual toxic pollutants and whole effluent toxicity. Both the acute limitations and receiving water limitations are consistent with numerous NPDES permits issued by the Regional Water Board and throughout the State.

CSPA Comment #26. The Proposed Permit Does Not Contain Effluent Limitations for Chronic Toxicity and Therefore Does Not Comply with Federal Regulations, at 40 CFR 122.44 (d)(1)(i).

Federal regulations, at 40 CFR 122.44 (d)(1)(i), require that limitations must control all pollutants or pollutant parameters which the Director determines are or may be discharged at a level which will cause, or contribute to an excursion above any State water quality standard, including state narrative criteria for water quality. The Water Quality Control Plan for the Sacramento/ San Joaquin River Basins (Basin Plan), Water Quality Objectives (Page III-8.00) for Toxicity is a narrative criteria which states that all waters shall be maintained free of toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. The proposed permit states that: "...to ensure compliance with the Basin Plan's narrative toxicity objective, the discharger is required to conduct whole effluent toxicity testing...". However, sampling does not equate with or ensure compliance. The proposed permit requires the Discharger to conduct an investigation of the possible sources of toxicity if a threshold is exceeded. This language is not a limitation and essentially eviscerates the Regional Board's authority, and the authority granted to third parties under the Clean Water Act, to find the Discharger in violation for discharging chronically toxic constituents. An effluent limitation for chronic toxicity must be included in the Order. In addition, the Chronic Toxicity Testing Dilution Series should bracket the actual dilution at the time of discharge, not use default values that are not relevant to the discharge. Accordingly, the proposed Permit must be revised to prohibit chronic toxicity in accordance with Federal regulations, at 40 CFR 122.44 (d)(1)(i).

RESPONSE: The SIP contains implementation gaps regarding the appropriate form and implementation of chronic toxicity limits. This has resulted in the petitioning of a NPDES permit in the Los Angeles Region¹⁷ that contained numeric chronic toxicity effluent limitations. As a result of this petition, the State Water Board adopted WQO 2003-012 directing its staff to revise the toxicity

¹⁷ In the Matter of the Review of Own Motion of Waste Discharge Requirements Order Nos. R4-2002-0121 [NPDES No. CA0054011] and R4-2002-0123 [NPDES NO. CA0055119] and Time Schedule Order Nos. R4-2002-0122 and R4-2002-0124 for Los Coyotes and Long Beach Wastewater Reclamation Plants Issued by the California Regional Water Quality Control Board, Los Angeles Region SWRCB/OCC FILES A-1496 AND 1496(a)

control provisions in the SIP. The State Water Board states the following in WQO 2003-012, *"In reviewing this petition and receiving comments from numerous interested persons on the propriety of including numeric effluent limitations for chronic toxicity in NPDES permits for publicly-owned treatment works that discharge to inland waters, we have determined that this issue should be considered in a regulatory setting, in order to allow for full public discussion and deliberation. We intend to modify the SIP to specifically address the issue. We anticipate that review will occur within the next year. We therefore decline to make a determination here regarding the propriety of the final numeric effluent limitations for chronic toxicity contained in these permits."* The process to revise the SIP is currently underway. Proposed changes include clarifying the appropriate form of effluent toxicity limits in NPDES permits and general expansion and standardization of toxicity control implementation related to the NPDES permitting process.

The toxicity control provisions in the SIP are under revision; therefore, it is impractical to develop numeric effluent limitations for chronic toxicity.

CSPA Comment #27. Contrary to Findings in the proposed Permit the Order Violates State and Federal Endangered Species Acts.

As discussed above, the Feather River is listed on the 303(d) list as impaired because of unknown toxicity and is home to species protected by state and federal endangered species acts. There is no remaining assimilative capacity for toxicity or toxic pollutants. Astonishingly, the proposed permit allows acute toxicity, fails to limit chronic toxicity and, as we discuss below, includes effluent limits that are not protective of listed species. The proposed permit is likely to result in the illegal "take" of listed species and will likely result in the destruction or adverse modification of critical habitat in violation of Section 9 of the federal Endangered Species Act (ESA).

The Order has been developed with federal funds and is issued pursuant to U.S. Environmental Protection Agency (U.S. EPA) authorization. Consequently, the Regional Board and/or U.S. EPA must enter into formal consultation with both the National Marine Fisheries Service (NMFS) and U.S. Fish and Wildlife Service (USFWS) pursuant to Section 7 of the ESA. The discharge of toxicity and toxic pollutants by the Discharger is a violation of Section 9 of the ESA and requires an incidental take permit pursuant to Section 10 of the ESA. The Regional Board's issuance of an Order that authorizes and/or "causes" an illegal "take" is also a violation of Section 9 of the ESA. Consequently, both the Discharger and the Regional Board must secure incidental take permits from NMFS and USFWS.

The proposed permit will also likely result in an illegal "take" of listed species pursuant to Section 2080 of the California Fish and Game Code; *i.e.*, the California Endangered Species Act (CESA). The Discharger must obtain a permit under Section 2081 or a consistency determination under Section 2080.1 of CESA. Unlike ESA, CESA requires

that authorized take be “fully mitigated” and that all required measures be “capable of successful implementation.” Since there are no provisions for time schedules under CESA, the Discharger must comply with protective limits as soon as possible and certainly prior to any increase in the rate of discharge. The inadequate toxicity, ammonia, and metals limitations in the proposed permit must be revised to be fully protective of listed species. The Discharger and Regional Board must initiate consultation with the California Department of Fish and Game.

RESPONSE: Regional Water Board staff disagree with these statements. The proposed Order contains numeric effluent limitations for acute toxicity, narrative limitations for chronic toxicity, and a receiving water limitation for toxicity that states the discharge shall not cause “*Toxic substances in concentrations that produce detrimental physiological responses in human, plant, animal, or aquatic life. This applies regardless of whether the toxicity is caused by a single substance or the interactive effect of multiple substances.*” The proposed Order also contains water quality-based effluent limitations for a number of toxic and non-conventional pollutants based on applicable water quality objectives designed specifically to protect aquatic life.

For clarity, the Regional Water Board staff included in the Order at the end of Section III.C.6 of the Fact Sheet:

“This Order does not authorize any act that results in the taking of a threatened or endangered species or any act that is now prohibited, or becomes prohibited in the future, under either the California Endangered Species Act (Fish and Game Code sections 2050 to 2097) or the Federal Endangered Species Act (16 U.S.C.A. sections 1531 to 1544). This Order requires compliance with effluent limits, receiving water limits, and other requirements to protect the beneficial uses of waters of the state. The discharger is responsible for meeting all requirements of the applicable Endangered Species Act.”

CSPA Comment #28. Failure to Include an Effluent Limitation for Dissolved Oxygen Violates Federal Regulations.

The discharge contains oxygen-demanding substances. The proposed permit contains a Receiving Water Limitation for dissolved oxygen. The discharge presents a reasonable potential to cause or contribute to exceedance of the Basin Plan’s water quality objective for dissolved oxygen. In accordance with Federal Regulations, 40 CFR 122.44, the proposed permit is required to contain an Effluent Limitation for dissolved oxygen and must be revised accordingly.

RESPONSE: Regional Water Board staff is not proposing to include an effluent limitation for dissolved oxygen as the proposed permit regulates the levels of oxygen-demanding substances through effluent limitations (e.g., biochemical oxygen demand), as well as includes receiving water effluent limitations for

dissolved oxygen. The multi-port diffuser used by the Discharger should also provide a well oxygenated effluent as it is released into the Feather River. However, Regional Water Board staff agrees that monitoring for dissolved oxygen in the effluent should be included in the Monitoring and Reporting Program to assess the quality of the effluent. Five days per week effluent sampling using grab samples has been included in the proposed Monitoring and Reporting Program.

CSPA Comment #29. The Order fails to include limits and monitoring for methylmercury.

The Tentative Permit includes an interim effluent mass limitation, or cap, for total mercury. Inexplicably, it ignores methylmercury; the bioaccumulative and biodamaging form of mercury. Regional Board TMDL staff has consistently maintained that the pending Delta Mercury TMDL will require substantial reductions in the mass loading of methylmercury from wastewater treatment plants. The Tentative Permit must include an interim cap on methylmercury loading.

The Tentative Permit states that, if the Regional Board determines that a mercury offset program is feasible, the Order may be reopened to reevaluate the interim mercury mass loading limitation(s) and the need for mercury offset program. An explicit permit reopener to include final load reductions established in the Delta Mercury TMDL must be incorporated in the Order.

The Monitoring and Reporting Program does not contain monitoring for methylmercury. Sampling for methylmercury is critical to support the mercury TMDL and the allocation of loads.

RESPONSE: Regional Water Board staff will not include an effluent limitation for methylmercury at this time, and until a TMDL is developed that addresses the sources of methylmercury. However, the Regional Water Board agrees that the monitoring will assist in the development of the TMDL, and will be useful in the implementation of the TMDL after adoption. Therefore methylmercury monitoring has been included in the Monitoring and Reporting Program. Monthly sampling using 24-hour composite samples has been included in the Monitoring and Reporting Program.

CSPA Comment #30. Monitoring requirements are inadequate in accordance with Federal regulations, 40 CFR §§ 122.44(i) and 122.48, which require that NPDES permits to include requirements to monitor sufficient to assure compliance with permit limitations and requirements, the mass or other measurement specified in the permit for each pollutant limited in the permit, and the volume of effluent discharged from each outfall.

NPDES permits are required to include monitoring specifying the type, the interval, and the frequency sufficient to yield data which are representative of the monitored activity including, when appropriate, continuous monitoring. The frequency of monitoring is insufficient to assure compliance with Permit limitations. Continuous EC and turbidity should be required as they are inexpensive. Continuous EC monitoring is especially critical to determine the critical values related to the numerous EC discussions and studies in the proposed Order.

RESPONSE: Regional Water Board staff does not concur that, although inexpensive, continuous monitoring should be required for effluent EC and turbidity. The proposed permit requires monitoring for effluent EC five times per week. This frequency should provide sufficient data to characterize the EC in the discharge. Also the EC levels and turbidity concentrations from the City of Yuba City Wastewater Treatment Facility are not expected to be variable enough to merit continuous monitoring. Regional Water Board staff also does not concur that continuous turbidity monitoring of the effluent is warranted. The monitoring of the Feather River for turbidity as proposed in the Monitoring and Reporting Program will provide the Regional Water Board with adequate data and information to assess compliance with applicable water quality objectives.

CSPA Comment #31. Regional Board Authority to Issue Compliance Schedules Under the CTR Has Now Lapsed.

The proposed permit includes an interim limitation and compliance schedule for compliance with the CTR aquatic toxicity criteria for lead.

40 CFR §131.38(e)(3) formerly authorized compliance schedules delaying the effective date of WQBELs being set based on the NTR and CTR. Pursuant to 40 CFR §131.38(e)(8), however, this compliance schedule authorization *expressly expired* on May 18, 2005, depriving the State and Regional Boards with any authority to issue compliance schedules delaying the effective date of such WQBELs. Indeed, the EPA Federal Register Preamble accompanying the CTR stated as much, noting, “*EPA has chosen to promulgate the rule with a sunset provision which states that the authorizing compliance schedule provision will cease or sunset on May 18, 2005.*”

The Regional Board may contend that the EPA Federal Register Preamble has effectively extended this compliance schedule authority when the Preamble observed, “[I]f the State Board adopts, and EPA approves, a statewide authorizing compliance schedule provision significantly prior to May 18, 2005, EPA will act to stay the authorizing compliance schedule provision in today’s rule.” It is true that the State Board subsequently adopted its Policy for Implementation of Toxics Standards for Inland Surface Waters, Enclosed Bays, and Estuaries of California, enacted by State Board Resolution No. 2000-015 (March 2, 2000) (“State Implementation Plan” or “SIP”) and that the SIP provides for compliance schedules without imposing a May 18, 2005 cutoff. U.S. EPA, however, *has not* acted to stay 40 CFR §131.38(e)(8) by the only means it

can lawfully do so: notice and comment rulemaking that amends 40 CFR §131.38(e)(8). Without such a rulemaking, 40 CFR §131.38(e)(8) remains the law and it unequivocally ends authorization to issue compliance schedules after May 18, 2000. See *Friends of the Earth, Inc. v. Environmental Protection Agency*, 446 F.3d 140 (D.C. Cir. 2006).

Even if 40 CFR §131.38(e)(8) did not preclude issuing compliance schedules which delay the effective date of WQBELs set under the NTR and CTR, the CWA itself precludes such compliance schedules—and any compliance schedule which delays the effective date of WQBELs past 1977.

Numerous courts have held that neither U.S. EPA nor the States have the authority to extend the deadlines for compliance established by Congress in CWA section 301(b)(1). 33 U.S.C. §1311(b)(1); See *State Water Control Board v. Train*, 559 F.2d 921, 924-25 (4th Cir. 1977) (“Section 301(b)(1)’s effluent limitations are, on their face, unconditional”); *Bethlehem Steel Corp. v. Train*, 544 F.2d 657, 661 (3d Cir. 1976), *cert. denied sub nom. Bethlehem Steel Corp. v. Quarles*, 430 U.S. 975 (1977) (“Although we are sympathetic to the plight of Bethlehem and similarly situated dischargers, examination of the terms of the statute, the legislative history of [the Clean Water Act] and the case law has convinced us that July 1, 1977 was intended by Congress to be a rigid guidepost”).

This deadline applies equally to technology-based effluent limitations and WQBELs. See *Dioxin/Organochlorine Ctr. v. Rasmussen*, 1993 WL 484888 at *3 (W.D. Wash. 1993), *aff’d sub nom. Dioxin/Organochlorine Ctr. v. Clarke*, 57 F.3d 1517 (9th Cir. 1995) (“The Act required the adoption by U.S. EPA of ‘any more stringent limitation, including those necessary to meet water quality standards,’ by July 1, 1977”) (citation omitted); *Longview Fibre Co. v. Rasmussen*, 980 F.2d 1307, 1312 (9th Cir. 1992) (“[Section 1311(b)(1)(C)] requires achievement of the described limitations ‘not later than July 1, 1977.’”) (citation omitted). Any discharger not in compliance with a WQBEL after July 1, 1977, violates this clear congressional mandate. See *Save Our Bays and Beaches v. City & County of Honolulu*, 904 F. Supp. 1098, 1122-23 (D. Haw. 1994).

Congress provided no blanket authority in the Clean Water Act for extensions of the July 1, 1977, deadline, but it did provide authority for the States to foreshorten the deadline. CWA section 303(f) (33 U.S.C. § 1313(f)) provides that: “[n]othing in this section [1313] shall be construed to affect any effluent limitations or schedule of compliance required by any State to be implemented prior to the dates set forth in section 1311(b)(1) and 1311(b)(2) of this title nor to preclude any State from requiring compliance with any effluent limitation or schedule of compliance at dates earlier than such dates.”

Because the statute contains explicit authority to expedite the compliance deadline but not to extend it, the Regional Board may not authorize extensions beyond this deadline in discharge permits.

The July 1, 1977, deadline for achieving WQBELs applies equally even if the applicable WQS are established after the compliance deadline. 33 U.S.C. section 1311(b)(1)(C) requires the achievement of “more stringent limitations necessary to meet water quality standards . . . established pursuant to any State law . . . or required to implement any applicable water quality standard established pursuant to this chapter.” Congress understood that new WQS would be established after the July 1, 1977, statutory deadline; indeed, Congress mandated this by requiring states to review and revise their WQS every three years. See 33 U.S.C. § 1313(c). Yet, Congress did not draw a distinction between achievement of WQS established before the deadline and those established after the deadline.

Prior to July 1, 1977, therefore, a discharger could be allowed some time to comply with an otherwise applicable water quality-based effluent limitation. Beginning on July 1, 1977, however, dischargers were required to comply as of the date of permit issuance with WQBELs, including those necessary to meet standards established subsequent to the compliance deadline.

In the Clean Water Act Amendments of 1977, Congress provided limited extensions of the July 1, 1977, deadline for achieving WQBELs. In CWA section 301(i), Congress provided that “publicly-owned treatment works” (“POTWs”) that must undertake new construction in order to achieve the effluent limitations, and need Federal funding to complete the construction, may be eligible for a compliance schedule that may be “in no event later than July 1, 1988.” 33 U.S.C. § 1311(i)(1) (emphasis added). Congress provided for the same limited extension for industrial dischargers that discharge into a POTW that received an extension under section 1311(i)(1). See 33 U.S.C. § 1311(i)(2). In addition, dischargers that are not eligible for the time extensions provided by section 1311(i) but that do discharge into a POTW, may be eligible for a compliance schedule of no later than July 1, 1983. See 33 U.S.C. § 1319(a)(6).

The fact that Congress explicitly authorized certain extensions indicates that it did not intend to allow others, which it did not explicitly authorize. In *Homestake Mining*, the Eighth Circuit held that an enforcement extension authorized by section 1319(a)(2)(B) for technology-based effluent limitations did not also extend the deadline for achievement of WQBELs. 595 F.2d at 427-28. The court pointed to Congress' decision to extend only specified deadlines: “[h]aving specifically referred to water quality-based limitations in the contemporaneously enacted and similar subsection [1319](a)(6), the inference is inescapable that Congress intended to exclude extensions for water quality-based permits under subsection [1319](a)(5) by referring therein only to Section [1311](b)(1)(A). *Id.* at 428 (citation omitted). By the same reasoning, where Congress extended the deadline for achieving effluent limitations for specific categories of discharges and otherwise left the July 1, 1977, deadline intact, there is no statutory basis for otherwise extending the deadline.

The Clean Water Act defines the term effluent limitation as: “*any restriction established . . . on quantities, rates, and concentrations of chemical, physical, biological, and other*

constituents which are discharged from point sources into navigable waters, the waters of the contiguous zone, or the ocean, including schedules of compliance.” 33 U.S.C. § 1362(11).

The term schedule of compliance is defined, in turn, as “a schedule of remedial measures including an enforceable sequence of actions or operations leading to compliance with an effluent limitation, other limitation, prohibition, or standard.” 33 U.S.C. § 1362(17). The purpose of a compliance schedule is to facilitate compliance with an effluent limitation by the applicable deadline by inserting interim goals along the way: “[a] definition of effluent limitations has been included so that control requirements are not met by narrative statements of obligation, but rather are specific requirements of specificity as to the quantities, rates, and concentration of physical, chemical, biological and other constituents discharged from point sources. It is also made clear that the term effluent limitation includes schedules and time tables of compliance. The Committee has added a definition of schedules and time-tables of compliance so that it is clear that enforcement of effluent limitations is not withheld until the final date required for achievement.” S. Rep. No. 92-414, at 77, reprinted in 1972 U.S.C.C.A.N. 3668 (Oct. 28, 1971) (emphasis added). Thus, Congress authorized compliance schedules, not to extend its deadlines for achievement of effluent limitations, but to facilitate achievement by the prescribed deadlines.

In *United States Steel Corp.*, the industry plaintiff argued that 33 U.S.C. § 1311(b)(1)(C) allows the July 1, 1977, deadline to be met simply by beginning action on a schedule of compliance that eventually would result in achieving the technology- and water quality-based limitations. 556 F.2d at 855. The Court of Appeals disagreed: “[w]e reject this contorted reading of the statute. We recognize that the definition of ‘effluent limitation’ includes ‘schedules of compliance,’ section [1362(11)], which are themselves defined as ‘schedules . . . of actions or operations leading to compliance’ with limitations imposed under the Act. Section [1362(17)]. It is clear to us, however, that section [1311(b)(1)] requires point sources to achieve the effluent limitations based on BPT or state law, not merely to be in the process of achieving them, by July 1, 1977.” *Id.* Thus, compliance schedule may not be used as a means of evading, rather than meeting, the deadline for achieving WQBELs.

Finally, a compliance schedule that extends beyond the statutory deadline would amount to a less stringent effluent limit than required by the CWA. States are explicitly prohibited from establishing or enforcing effluent limitations less stringent than are required by the CWA. See 33 U.S.C. § 1370; Water Code §§ 13372, 13377. The clear language of the statute, bolstered by the legislative history and case law, establishes unambiguously that compliance schedules extending beyond the July 1, 1977, deadline may not be issued in discharge permits. The proposed permit, however, purports to do just that. By authorizing the issuance of permits that delay achievement of effluent limitations for over thirty years beyond Congress’ deadline, the Permit makes a mockery of the CWA section 301(b)(1)(C) deadline and exceeds the scope of the Regional

Board's authority under the Clean Water Act and the Porter-Cologne Act. 33 U.S.C. § 1311(b)(1)(C). The proposed permit must be revised to comply with the regulations.

RESPONSE: The SIP is the governing policy in California for implementing the CTR and it allows compliance schedules. USEPA approved the section of the SIP concerning compliance schedules. Although the CTR provisions for compliance schedules expired, that does preclude the State Water Board from establishing its own version of compliance schedules since the SIP is intended to implement the CTR. The SIP allows compliance schedules that are as short as practicable but in no case: (1) allows more than 5 years to come into compliance with CTR-based effluent limitations, and (2) allows the compliance schedule to extend beyond 10 years from the effective date of the SIP (18 May 2000) to establish and comply with CTR-based effluent limitations. The proposed permit, therefore, includes a time schedule to comply with CTR-based effluent limitations by 18 May 2010 (i.e., 10 years from SIP effective date). In addition, the Discharger provided a justification for the compliance schedule in accordance with Section 2.1 of the SIP, and the Order requires compliance with interim effluent limitations (as required by the SIP) and submission of quarterly progress reports.

CSPA Comment #32. The proposed Permit backslides by failing to contain Effluent Limitations as stringent as the previous permit contrary to Federal Regulation 40 CFR 122.44(I).

The previous NPDES permit for Yuba City contained Effluent Limitations for:

- | | |
|--------------------------------|--------------------------|
| • Bis (2-ethylhexyl) phthalate | • 2,4,6-Trichlorophenol |
| • Chloroform | • Nitrite+Nitrate (as N) |
| • Thiobencarb | • Trichloroethylene |
| • Arsenic | • Iron – mass limit |
| • cis-1,2-Dichloroethene | • manganese – mass limit |
| • MTBE | • MBAS – mass limit |
| • Pentachlorophenol | • Cadmium |

These constituents are not limited in the proposed Permit. In accordance with Federal Regulation 40 CFR 122.44(I) a renewed NPDES permit must contain effluent limitations at least as stringent as the previous permit.

RESPONSE: See responses to CSPA Comment #17 and CSPA Comment #20. The Fact Sheet has been revised to identify exceptions to backsliding. The Clean Water Act specifies that a revised permit may not include effluent limitations that are less stringent than the previous permit unless a less stringent limit is justified based on exceptions to the antibacksliding provisions contained in Clean Water Act sections 402(o) or 303(d)(4) and federal regulations at 40 CFR 122.44(I). The previous permit contained effluent limits for numerous constituents. In response to a

petition by the Discharger, the State Water Board remanded the permit to the Regional Water Board to reconsider effluent limits for many of these constituents. The effluent limits that were part of the remand did not become effective and are subject to an exception to the antibacksliding provisions. Where an effluent limit did not become effective, the antibacksliding provisions of the Clean Water Act do not apply. See Table F-29 in the Fact Sheet showing which effluent limits were remanded to the Regional Water Board. The State Water Board upheld effluent limits in the previous permit for bis (2-ethylhexyl) phthalate, iron, lead, manganese, molybdenum, n-Nitrosodi-n-Propylene, and electrical conductivity (EC). Thus, all of the constituents were in effect throughout the term of the previous permit. The proposed revised permit contains effluent limits for each of these constituents, except n-Nitrosodi-n-Propylene, and the effluent limits for these constituents are less stringent than the previous permit.

- The proposed revised permit does not include an effluent limit for n-Nitrosodi-n-Propylene because new information, including new data and new information about available dilution, supports the conclusion that there is no reasonable potential for this constituent to cause or contribute to an excursion above a water quality standard. The deletion of the effluent limit for this constituent is justified based on Clean Water Act regulations at 40 CFR section 122.44(d)(1)(2)(i)(B)(1), which allows for exceptions to anti-backsliding based on new information that was not available at the time of issuance of the previous permit that supports the deletion of the effluent limit.
- The proposed revised effluent limits for molybdenum are less stringent than the previous permit because new information, including new data and new information about dilution, supports revising the limit. The effluent limits may be relaxed based on 40 CFR 122.44(l)(1)(B)(1), which allows for exceptions to anti-backsliding based on new information that was not available at the time of issuance of the previous permit and which would have justified a less stringent limit. The proposed revised limits, however, are not fully consistent with the Clean Water Act. Clean Water Act section 303(d)(4) allows relaxation of water quality-based effluent limitations in waters that are in attainment of the standard as long as relaxation complies with the anti-degradation policy. The proposed limits should only be as high as is justified under the state and federal anti-degradation policies. This permit contains effluent limits that have been revised from the proposed permit to comply with the anti-degradation policies and are based on performance, not just new information about dilution. The proposed average monthly effluent limitation for molybdenum was 1,999 µg/L and the new limitation is 32 µg/L. The new effluent limitation is a performance limitation and is based on the lognormal distribution of effluent data over the past 3 years. The upper end of the lognormal distribution equates to the average monthly effluent limitation of 32 µg/L. The use of the upper end of the distribution for determining the effluent limitation is consistent with both EPA and Regional Water Board approaches for deriving effluent limitations. The new limits will maintain the high quality of the Feather River.

- The proposed revised numeric effluent limitation for iron are the same as the previous permit, but the averaging period has been revised to be an annual average to be consistent with state regulations implementing secondary drinking water standards, and the mass limitations have been deleted consistent with federal regulations. The revised limitation for iron is justified based on Clean Water Act section 303(d)(4), which allows relaxation of effluent limits in waters that are in attainment of the objective for the specific constituent as long as relaxation complies with the anti-degradation policy. The available information demonstrates that the new limitation will maintain high quality of the waters of the Feather River.
- The proposed revised effluent limitations for manganese are less stringent than the previous permit because new information, including new data and new information about dilution supports revising the limit. The effluent limits may be relaxed based on 40 CFR 122.44(l)(i)(B)(1), which allows for exceptions to anti-backsliding based on new information that was not available at the time of issuance of the previous permit and which would have justified a less stringent limit. The averaging period for the proposed revised numeric effluent limitation has also been revised to be an annual average to be consistent with state regulations implementing secondary drinking water standards, and the mass limitations have been deleted consistent with federal regulations. The proposed revised limits, however, are not fully consistent with the Clean Water Act. Clean Water Act section 303(d)(4) allows relaxation of water quality-based effluent limitations in waters that are in attainment of the standard as long as relaxation complies with the anti-degradation policy. The proposed limits should only be as high as is justified under the state and federal anti-degradation policies. This permit contains effluent limits that have been revised from the proposed permit to comply with the anti-degradation policies and are based on performance, not just new information about dilution. The proposed annual average effluent limitation for manganese was 2,899 µg/L and the new limitation is 200 µg/L. The new effluent limitation represents the 95th percentile of the effluent data over the past 3 years (186.68 µg/L) rounded up. The new limits will maintain the high quality of the Feather River.
- As described in the response to City of Yuba City Comment #5, the Regional Water Board is not establishing effluent limitations for bis (2-ethylhexyl) phthalate but is requiring dischargers to monitor for its presence using sampling and analytical methods that would minimize the potential for contamination. The Regional Water Board believes that the resulting data will provide more valid, reliable, and representative data to determine whether a reasonable potential exists for bis (2-ethylhexyl) phthalate. Because the final effluent limit for this constituent did not become effective prior to this renewal of the permit, the anti-backsliding requirements do not apply.
- The previous permit stated: "The 30-day 90th percentile effluent electrical conductivity shall not exceed 830 µmhos/cm." The proposed revised permit contains a final monthly average EC effluent limit of 1000 umhos/cm. The proposed permit limit for EC of 1000 umhos/cm on a monthly average is

approximately the same as the existing limitation of 830 umhos/cm as a 90th percentile over 30-days and, therefore, will not result in backsliding from the current limit. The proposed revised permit also includes a receiving water limitation that applies the applicable Basin Plan objective that electrical conductivity (at 25°C) shall not exceed 150 micromhos/cm as a 90 percentile based on a 10-year rolling average.

The federal regulations at 40 CFR section 122.44(l)(2)(i)(B)(1) allow a relaxation of an effluent limit where new information that was not available at the time of permit issuance justifies a less stringent limit. New data is available with respect to EC and the discharger's performance that would justify a less stringent limit. The highest calculated 30-day 90th percentile of the discharge from 1 July 2003 – 30 June 2006 was 949 µmhos/cm. The highest reported daily discharge from 1 July 2003 – 30 June 2006 was 1,000 µmhos/cm. Revising the final effluent limit from 830 µmhos/cm as a 30-day 90th percentile to a final monthly average limitation of 1000 µmhos/cm is justified based on 40 CFR section 122.44(l)(2)(i)(B)(1).

Clean Water Act section 303(d)(4) also allows relaxation of effluent limits where the receiving water is in attainment with the standard and as long as the revised limit is in compliance with the anti-degradation policy. The addition of the 10-year averaging period may be justified under section 303(d)(4). When the Basin Plan was last revised, the averaging period for EC for the Feather River was inadvertently not included in the revision. The EC limits for the Sacramento River did include the 10 year averaging period. As described in the response to CSPA Comment #22, based on an evaluation of a discharge at up to 1000 µmhos/cm and using conservative assumptions, Regional Water Board staff estimate that the discharge will not cause a violation of the Basin Plan objective in the Feather River. To be consistent with the anti-backsliding requirements, the permit now contains a final monthly average EC effluent limit of 1000 µmhos/cm. The proposed permit limit for EC of 1000 umhos/cm on a monthly average is approximately the same as the existing limitation of 830 umhos/cm as a 90th percentile over 30-days and, therefore, will not result in backsliding from the current limit. In addition, the permit includes a receiving water limit for EC that states: "The discharge cannot cause or contribute to the Feather River downstream of the discharge to exceeding an EC concentration of 150 µmhos/cm as a 90th percentile over a 10 year rolling average."

CENTRAL VALLEY CLEAN WATER ASSOCIATION

CVCWA Comment #1. U.S. EPA Recommended Ambient Criteria for Aluminum

The Regional Water Board proposes effluent limits for aluminum based on an interpretation of the narrative toxicity objective in the Basin Plan and use of best

professional judgment. The Regional Water Board relies on and applies the U.S. EPA Section 304(a) *National Recommended Water Quality Criteria for Aluminum - 2002*¹⁸ in the derivation of the proposed effluent limits in the Tentative Order. These U.S. EPA criteria were developed to protect aquatic life uses. Aluminum is not a priority pollutant and is not included in the California Toxics Rule ("CTR"). Also, a numeric aquatic life-based water quality objective for aluminum is not included in the Central Valley Basin Plan.

The U.S. EPA *National Recommended Criteria for Aluminum* include an acute value of 750 µg/L, and a chronic value of 87 µg/L. There are three footnotes associated with the chronic criterion, which are excerpted below:

- G. *This value is based on a 304(a) aquatic life criterion that was derived using the 1985 Guidelines (Guidelines for Deriving Numerical National Water Quality Criteria for the Protection of Aquatic Organisms and Their Uses, PB85-227049, January 1985) and was issued in one of the following criteria documents: Aluminum (EPA 440/5-86-008); Chloride (EPA 440/5-88-001); Chlorpyrifos (EPA 440/5-86-005).*
- I. *This value for aluminum is expressed in terms of total recoverable metal in the water column.*
- L. *There are three major reasons why the use of Water Effect Ratios might be appropriate. (1) The value of 87 ug/L is based on a toxicity test with the striped bass in water with pH – 6.5-6.6 and hardness <10 mg/L. Data in "Aluminum Water-Effect Ratio for the 3M Plant Effluent Discharge, Middleway, West Virginia" (May 1994) indicate that aluminum is substantially less toxic at higher pH and hardness, but the effects of pH and hardness, are not well quantified at this time. (2) In tests with the brook trout at low pH and hardness, effects increased with increasing concentrations of total aluminum even though the concentration of dissolved aluminum was constant, indicating that total recoverable is more appropriate measurement than dissolved, at least when particulate aluminum is primarily aluminum hydroxide particles. In surface waters, however, the total recoverable procedure might measure aluminum associated with clay particles, which might be less toxic than aluminum associated with aluminum hydroxide. (3) EPA is aware of field data indicating that many high quality waters in the U.S. contain more than 87 µg aluminum/L, when either total recoverable or dissolved is measured.*

As the footnotes above indicate, the development of the chronic criterion was based on specific receiving water conditions where there are low pH levels (below 6.5) and low hardness levels (below 10 mg/l as CaCO₃). This finding is corroborated in a letter from

¹⁸ USEPA 2002. *National Recommended Water Quality Criteria: 2002*. Office of Water, Office of Science and Technology. EPA-822-R-02-047. November.

Charles Delos of U.S. EPA to Richard McHenry at the Regional Water Board. According to Mr. Delos, the chronic aluminum criterion of 87 µg/L “is expected to be overly protective when applied to waters of moderate hardness and pH.” Such conditions are not generally applicable to Central Valley waterways.

A number of communities in the Central Valley have embarked on preliminary water effect ratio studies for aluminum in response to (or in anticipation) of aluminum effluent limits adopted (or to be adopted) by the Regional Water Board. The City of Yuba City is one of those cities, along with the Cities of Manteca and Modesto, that has performed preliminary water effects ratio testing in accordance with U.S. EPA testing protocols. Preliminary results from Yuba City’s study as well as the other indicate that site-specific aluminum criteria based on observed WER values in local waters greatly exceed the U.S. EPA 304(a) criteria for protection of aquatic life uses. The calculated WER values and projected aquatic life criteria from these studies are listed in Tables 1 and 2, respectively.

Table 1. Estimated Aluminum WER values in the Central Valley (Preliminary)

Test Species	Manteca	Modesto	Yuba City
<i>Daphnia magna</i>	---	211	>53.5
<i>Ceriodaphnia dubia</i>	22.7	79.6	>53.5
<i>Rainbow Trout</i>	---	229	>53.5

Table 2. Projected Site specific Aluminum Criteria for Protection of Aquatic Life Uses (Preliminary)

Permittee	4-day average chronic criterion (µg/L) (a)
Manteca	1,975
Modesto	6,925
Yuba City	4,655

(a) Based on minimum WER value for permittee X 87 µg/L

Thus, the tests performed by Yuba City and the other communities confirm that aluminum toxicity is not an issue of concern in Central Valley receiving waters or effluents. This is supported by the U.S. EPA 304(a) criteria information, which indicates that aluminum toxicity is not anticipated at the higher hardness and pH values generally encountered in the Central Valley. Because the preliminary testing results overwhelmingly confirm that aluminum toxicity is not an issue of concern, CVCWA questions the Regional Water Board’s practice of continuing to apply the recommended criteria unless an expensive water effects ratio study is completed and accepted by Board staff. The Regional Water Board has the discretion to use best professional judgment to determine that recommended criteria are not applicable based on results of the preliminary studies; just as the Regional Water Board used its best professional judgment to apply the criteria in the first place.

In lieu of requiring the development of expensive water effects ratio studies, CVCWA encourages the Regional Water Board to allow Central Valley dischargers the option of conducting preliminary studies to show the anticipated impact of aluminum of toxicity. If the preliminary studies overwhelmingly indicate that aluminum toxicity is not an issue, as is in the cases of Yuba City, Modesto and Manteca, the Regional Water Board should use its discretion and exercise its best professional judgment to no longer apply the recommended ambient criteria for aluminum. Such an approach is consistent with the *Policy for Application of Water Quality Objectives*, which requires the Regional Water Board to evaluate if numeric criteria “are relevant and appropriate to the situation at hand and, therefore, should be used in determining compliance with the narrative objective.” (Basin Plan at p. IV-17.00.)

RESPONSE: Aluminum is considered a toxic constituent. There are no CTR criteria and no numerical water quality objective in the Basin Plan for aluminum. The applicable water quality objective is the Basin Plan’s “narrative toxicity objective”. The information available to the Regional Board indicates that there is a reasonable potential for the discharge to cause or contribute to an excursion above the narrative toxicity objective. Consistent with 40 CFR 122.44(d)(1)(vi)(A)-(C), the proposed Order includes an effluent limit based on an EPA criteria.

Consistent with other NPDES permits, the 87 ug/l aquatic life aluminum criteria, as specified in the 2002 USEPA National Recommended Water Quality Criteria (NRWQC) was implemented for the development of aluminum limitations in the tentative Order. The national criteria were developed based on scientific studies that concluded that aluminum is toxic to aquatic life at specified concentrations. Since the discharge contains aluminum, it is necessary to assure that the discharge does not result in toxicity.

See response to City of Yuba City Comment #1 regarding establishing effluent limitations prior to completion of a water-effects ratio.

CVCWA Comment #2. Effluent Limitation for Molybdenum

The tentative order contains an effluent for molybdenum that is based on the agricultural water quality goal as contained in the *Water Quality for Agriculture, Food and Agriculture Organization of the United Nations – Irrigation and Drainage Paper No. 29, Rev. 1* (R.S. Ayers and D.W. Westcot, Rome, 1985) (“UN Report”). According to the fact sheet for the tentative order, the agricultural water quality goal has been applied without the consideration of site-specific conditions as directed by the State Water Resources Control Board (“State Water Board”) in its *City of Woodland* decision. (Order WQO 2004-0010.)

The State Water Board’s decision in *City of Woodland* precludes the practice of using the agricultural water quality goal from the UN Report without first consider site-specific considerations:

“The UN Report makes it clear that site-specific considerations are important in assessing irrigation water suitability. The preface to the report states that the guidelines can indicate potential problems and use restrictions with a water supply. ...

“With this caveat in mind, it is obvious that the 700 umhos/cm EC value cannot be interpreted as an absolute value. Rather, the Regional Board must determine whether site-specific conditions applicable to Woodland’s discharge allow some relaxation in this value. Chief among them is leaching.”

(Order WQO 2004-0010, at p. 7.)

In its application of the UN Report’s agricultural water quality goals, the Regional Water Board staff did not consider site-specific conditions. Thus, CVCWA recommends that the Regional Water Board eliminate the effluent limitation for molybdenum until such time that the Regional Water Board can properly consider site-specific factors to determine if the molybdenum agricultural water quality goal is applicable to the City of Yuba City’s discharge.

RESPONSE: Regional Water Board staff does not concur with CVCWA’s comments based on the fact that the toxicity of molybdenum is different than that of electrical conductivity. In particular, the concern with EC is the toxicity to crops/plants, which lends itself to assessing site-specific considerations such as presence of the crops that could be affected. In animals, acutely toxic oral doses of molybdenum have been shown to have severe impacts, ranging from gastrointestinal irritation to death from cardiac failure. Although non-ruminant animals will develop symptoms of toxicity when fed high molybdenum diets, ruminants are much more sensitive. Molybdenum toxicity in animals is commonly referred to as molybdenosis. Therefore, the Regional Water Board will continue to establish effluent limitations based on agricultural water goals.

CVCWA Comment #3. Compliance Schedules for Aluminum and Iron

The tentative order contains compliance schedules for aluminum and iron that are based on the compliance schedule provisions for California Toxic Rule (“CTR”) constituents as is contained in the Code of Federal Regulations for CTR pollutants. The tentative order contains a final compliance date of May 18, 2010 for these two constituents. CVCWA is concerned with the implication of such a final compliance date for two non-CTR constituents. The compliance schedule provisions in the CTR apply only to CTR constituents and are not applicable to non-CTR constituents. For non-CTR constituents, the Regional Board must apply the compliance schedule provisions as contained in the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins (“Basin Plan”). Under the Basin Plan provisions, the Regional Board must establish a final compliance date that is based on the shortest practicable time required to achieve compliance. Compliance schedules under this provision are therefore as

short as practicable but may not exceed ten years in length. CVCWA encourages the Regional Board to properly identify the appropriate authority for establishing compliance schedules for aluminum and iron within the tentative order.

RESPONSE: See response to Yuba City Comment #4.